

**ANALYSIS, PRELIMINARY DETERMINATION AND DRAFT PERMIT
FOR
3M MENOMONIE
LOCATED AT
1425 STOKKE PARKWAY,
MENOMONIE, DUNN COUNTY, WISCONSIN
ON THE OPERATION OF
A MANUFACTURING OF PLASTICS AND FILMS**

This review was performed by the Wisconsin Department of Natural Resources in accordance with Sections 285.60 to 285.66, Wis. Stats. and Chapter NR 407, Wis. Adm. Code. This review is for a Part 70 source located in an area which is designated attainment/unclassified for all criteria pollutants.

Air Pollution Control Operation Permit: 04-SJZ-142, 04-SJZ-142-OP, 617056660-P01

Analysis, Preliminary Determination
and Draft Permit prepared by: Sonny Zentner Date: 10/12/04

Approval Element	Initials and Date
Preliminary Determination Document (including calculations)	/s/ POY 06/04/04
Applicable Requirement	/s/ JAS 10/07/04
Compliance Documentation Methods (compliance inspector concurrence)	/s/ JAS 10/07/04
Compliance Plan and Schedule	<i>Not Applicable</i>
Federal Enforceability of Permit Conditions (synthetic minor conditions)	/s/ JEA 10/12/04

Approved for Public Review and Comment: /s/ JEA Date: 10/12/04

cc: Baldwin Service Center
Menomonie Public Library, 600 Wolske Bay Rd., Menomonie, WI 54751

INTRODUCTION

Sources which are not exempt from the operation permit requirements under Section 407.03, Wis. Adm. Code, are required to obtain an air pollution control operation permit. Sources subject to the requirements must submit a permit application to the Department of Natural Resources by the date set forth in Sections 285.62(11)(b)1., Wis. Stats., and NR 407.04, Wis. Adm. Code. The application is then reviewed following the provisions set forth in Sections 285.62, 285.63 and 285.64, Wis. Stats., and Chapter NR 407, Wis. Adm. Code.

Subject sources are to be reviewed for their air pollution control technology and for their impact upon the air quality. This is to insure compliance with all applicable rules and statutory requirements. The review will show why the source(s) operation should be approved, conditionally approved, or disapproved. It will encompass emission calculations and air quality analysis using US EPA models, if applicable. Emissions from volatile organic compound (VOC) sources and small sources whose emissions are known to be insignificant are normally not modeled. As a precautionary note, the emission estimates may be based on US EPA emission factors (AP-42) or theoretical data and can vary from actual stack test data.

This review is based on information contained within the application submitted for an air pollution control operation permit. An operation permit may be issued if the criteria set forth in sections 285.63 and 285.64, Wis. Stats., are met.

A final decision on the operation permit will not be made until the public has had an opportunity to comment on the Department's analysis, preliminary determination and draft permit. The conditions proposed in the draft permit may be revised in any final permit issued based on comments received or further evaluation by the Department.

GENERAL APPLICATION INFORMATION

Owner/Operator: 3M Menomonie Optical Systems Division
1425 Stokke Parkway
Menomonie, WI 54751

Responsible Official: James M. McSweeney, Plant Manager
715-235-5541

Application Contact Person: Wendy Reno,
651-778-7674
John Metzger,
651-778-4805

Application Submitted By: Wendy Reno,
651-778-7674
John Metzger,

651-778-4805

Date of Administratively Complete Application: 06/01/04

Dates of Submittal: Application Received - 01/07/03 - P01

Additional Information - 04/22/04 - P01

Application Complete - 06/01/04 - P01

SOURCE DESCRIPTION

The 3M Company facility located in Menomonie, Wisconsin, consists of a variety of specialized business units that develop and market various products for consumer and industrial use. 3M Menomonie was built to provide a location for 3M operating divisions to move new products from bench scale to small volume pilot plant production. In several cases, the manufacturing has remained at the facility and grown beyond the small volume stage. Presently the following operations are located within the facility, each representing a distinct division of 3M.

E-Beam Line - this processing line is equipped with an electron beam unit to process curable coatings without heat or use of other solvents. Typical products include adhesive film for flexible printing circuits, automotive weather-stripping, and foam backings for the laminate floor industry. The E-beam line operations produces some hazardous waste and solid landfill waste. This process is listed as an insignificant activity and is identified as process I2.

Information and Materials Security Department - this process produces electromagnetic detection strips used in library books and other items for security applications. This process involves an inerting oven and is considered an insignificant activity.

Optical Systems Division (OSD) - consists of processes P10, S10, S20; P11, S11, S21; P12, S12; P13, S13, S23; P06, S06, S36; P21, S50, S51, S52, S53; MRC-1, MRC-2, MRC-3, MRC-4 MRC-5, MRC-6 Resin Coating Lines. This process produces an optical film used as a brightness enhancing film on lap top computer screens and other applications. There is a supporting tool making process (chrome plating) that produces tooling rolls for 3M Menomonie as well as other 3M plants. The department also has a converting department for some of the web products produced and is listed as an insignificant activity. This divisions manages operations that potentially affect air emissions, hazardous waste generation, and solid waste disposal.

Personal Care and Related Products (PC&RP) – this process produces both the hook and the matching loop to be used as an integrated fastening system. PC&RP consists of extrusion line 1, 2, and 3 (identified as process I3, I4, I5), hot melt coater (identified as process I6), elastic coating 1 (identified as I7), and elastic coating (identified as process I8). The hot melt coater (I6) coats adhesive for extrusion lines 1, 2, and 3 (I3, I4, I5). Elastic coating 1 and 2 (I7 and I8) consist of a film that is stretched and laminated to the woven side that has been sprayed with a hot melt adhesive. Processes I3, I4, I5, I6, I7, and I8 within the PC&RP division are insignificant activities.

Proteus Group - This group consists of the gamma line, process P20, which is capable of producing two different types of products: roll goods and sheet goods for the fuel cell industry. The remaining areas in

this group are for research and development including the new fuel cell technology and are insignificant activities. The Proteus Group produces some hazardous and solid wastes; but recycling is applied to reduce waste levels where economically viable.

Semiconductor Wafer Planerization (SWP) - abrasive process that produces abrasive products for application in the semi-conductor industry. This process is listed as an insignificant activity.

Specialty Fibers & Composites (SF&C) - produces ceramic fibers. The fibers are used in the manufacture of high temperature insulative products used in various applications. The fiber processes require a regulatory air permit.

Tape Process Development Center (TPDC) - produces a variety of coated adhesive tapes for the electrical products markets. Utilizes coating stations (pre-coat and post-coat), adhesive material handling/compounding, an electric curing oven, and a gas-fired curing oven. The adhesive material handling/compounding portion is listed as an insignificant activity.

Thin Film Technology Resources (TFTR) - vacuum coating of products used in optical, protective, conductive or reflective applications. This group also is capable of web patterning by chemical etching, stripping, developing, and exposing methods. This process is listed as an insignificant activity.

Traffic Safety System (TSS) - this process produces diamond grad reflective sheeting used in the traffic sign and traffic construction safety industries. The process consists of an extrusion, laminating, rewind/unwind stations. The tool fabrication area involves a protective spray coating booth, which potentially affects air emissions and produces some hazardous and solid wastes.

Environmental Cooperative Agreement

Historically, all divisions at 3M were considered separate facilities. On October 1, 2002, the Wisconsin Department of Natural Resources (DNR), and 3M signed an Environmental Cooperative Agreement (Agreement) regarding the 3M facility in Menomonie, Wisconsin. This Agreement was developed under Wisconsin's Environmental Cooperation Pilot Program (Program) pursuant to Section 299.80, Wis. Statutes.

The October 1, 2002 Agreement, recognized that DNR and 3M would pursue an amended Agreement (Amendment) that outlined innovative regulatory approaches and flexibility's, while providing the same level of protection to public health and the environment, that will be incorporated as part Part III of an air pollution control construction and operations permit at the 3M facility, located at 1425 Stokke Parkway, Menomonie, Dunn County, WI, 54751. Now, pursuant to Section 299.80 (7)(b), Wis. Stats., DNR is proposing to amend that Agreement with 3M.

DNR will consider these inclusions following the Public Notice, Comment Period, Public Hearing, and the conditions pursuant to Section 299.80 (7) (b) (1) and Section 299.80 (8) Wis. Statutes.

Additionally any variances must either promote the reduction in overall levels of pollution to below the levels required under chs. 280 to 295, Wis. Stats. or provide for alternative monitoring, testing, record keeping, notification or reporting requirements that reduce the administrative burden on state agencies or the participant and provide the information needed to ensure compliance with the Agreement and the provisions of chs. 280 to 295, Wis. Stats. and rules promulgated under those chapters for which the

Program does not grant a variance.

3M volunteered to help DNR pilot new approaches to environmental regulation through the Program. The proposed Amendment contains the language that determines how DNR and 3M will carry out the goals of the Program. Public comments on the proposed Amendment are welcome. The Amendment provides an opportunity for greater flexibility and reduced paperwork and administrative tasks and encourages sources to reduce pollution to levels below those required by state and federal requirements. Section 299.80, Wis. Stats. also encourages public participation through an interested persons group.

The Amended Agreement between 3M and the DNR will result in the issuance of an air pollution control operations permit (617056660-P01) and construction permit (04-SJZ-142) for the facility. 3M Menomonie will be considered one source (all divisions will be incorporated under one source). Prior to this proposed Amendment between 3M and the DNR, all divisions at the 3M Menomonie facility were considered separate facilities with separate facility identification numbers. Under operation permit 617056660-P01, all divisions will be listed under one facility identification number (FID) as 617056660.

The Amendment includes a total facility limit of 20.75 tons per month averaged over 12 months (249 tons per year) of volatile organic compounds (VOC). 3M requested the 20.75 tons per month averaged over 12 months of volatile organic compounds limit in the operation permit application and in the Environmental Cooperative Agreement. This limit will not restrict future expansion in production lines since actual VOC emissions are less than 249 tons per year and because 3M anticipates a large increase in production with a minimal increase or reduction in emissions and waste generation.

Under the Environmental Cooperative Agreement, processes listed in Part III.A of construction permit 04-SJZ-142 and operation permit 617056660-P01 have been pre-approved under construction permit 04-SJZ-142 and will be allowed to construct as long as the Environmental Cooperative Agreement is in affect. The processes listed in Part III.A of construction permit 04-SJZ-142 and operation permit 617056660-P01 include spray/paint booth coating, ceramic fiber making, chromium plating, R&D/pilot/development projects, and web coating. For any project/facility change listed in Part III.A of construction permit 04-SJZ-142 and operation permit 617056660-P01, the facility will be required to do the following:

(a) Initial Notification.

1. for R&D/Pilot/Development projects authorized under Part III.A(4) of this permit, the notification shall be sent to Wisconsin DNR within 10 days prior to implementation of the project/facility change, and shall include a description of how records will be maintained for that project for purposes of assuring continued compliance with the facility-wide emissions limit as well as any relevant limits. The notification shall also include an explanation of any calculations, emission factors, or other information which will enable the recordkeeping to be performed.
2. for all other projects authorized under Part III.A of this permit, the notification shall be sent to Wisconsin DNR within 3 days prior to implementation of the project/facility. Recordkeeping for these projects will be performed according to requirements of the relevant section of Part III.A.

(b) Start-up Notification. Notify Wisconsin DNR within 30 calendar days after start-up of any project/facility change authorized under Part III.A of this permit. This notification shall include the following information.

1. a general description of the project, emission calculations, emission rates, identification of which pre-approval under Part III.A of the permit applies, and an explanation of why the project is covered under that pre-approval,
2. a listing of all applicable permit requirements for the pre-approved project/facility change [e.g. a web coating line installed without a thermal oxidizer is not subject to the thermal oxidizer requirements delineated in Part III.J.],
3. an explanation of how VOC emissions will be tracked against the facility cap [including a description of any revision of emissions factors],
4. identification of any NR 445 substances, and the analysis for each, as required under this permit, demonstrating that the NR 445 emission threshold is satisfied, or that through modeling the concentration of the NR 445 substance at the property line is below required levels, and
5. identification of any of the criteria pollutants NO_x, SO_x, or PM, and modeling or other demonstration, as required under this permit, showing that the NAAQS will not be exceeded at the property line of the facility.

The Amended Agreement between 3M Menomonie and the Department and supporting background information is contained in separate documents that are available for public review. The signing of the Agreement on October 1, 2002, established a starting date for terms of any additional amendments. The Amendment will expire or be negotiated on or before October 1, 2007. Any Environmental Cooperative Agreement entered into by the DNR would have a term of five years with the possibility of a renewal for up to five additional years. Because Part III of construction permit 04-SJZ-142 and operation permit 617056660-P01 is the basis under the Amendment, granting construction and operation of processes listed in Part III.A. under operation permit 617056660-P01 and construction permit 04-SJZ-142, construction permit 04-SJZ-142 will be in affect for five years and will expire on the same day as the operation permit 617056660-P01. If the facility decides to renew the Agreement, pursuant to Section 299.80 , Wis. Stats., a new construction permit may be issued when the operation permit 617056660-P01 is renewed to grant further construction and operation of processes listed in Part III.A. under operation permit 617056660-P01 and the new construction permit. This new construction permit will be in affect for five years. The operation permit 617056660-P01 will expire 5 years after the issuance date and can be renewed every 5 years after the issuance date. This preliminary determination to issue 3M Menomonie an operation permit highlights the proposed variances from air pollution control provisions of ch. 285, Wis. Stats, ss. NR 400 to 499, Wis. Adm. Code, and requirements contained in air pollution control permits currently held by the company.

Changes to the 3M Menomonie Facility

Particulate Matter Limits for Boilers P01-P05 – Particulate matter emissions from boilers P01, P02, P03, P04, and P05 were predicted to exceed the National Ambient Air Quality Standards (NAAQS) at an emission rate of 0.15 pounds per million BTU so the facility has decided to limit boilers P01, P02, P03, P04, and P05 to the maximum theoretical emission rates. At these maximum theoretical emission rates, particulate matter emissions from boilers P01, P02, P03, P04, and P05 will meet the NAAQS. Particulate matter emissions from boilers P01, P02, P03, P04, and P05 are limited to the following:

- boiler P01 – 0.300 lb/hr of particulate matter,
- boiler P01 – 0.190 lb/hr of particulate matter,
- boiler P01 – 0.239 lb/hr of particulate matter,
- boiler P01 – 0.150 lb/hr of particulate matter, and
- boiler P01 – 0.150 lb/hr of particulate matter.

Prevention of Source Deterioration (PSD) - 3M has requested in the operation permit application and in the Environmental Cooperative Agreement to have a total VOC limit of 20.75 tons per month, averaged over any 12 consecutive months, for the entire facility. This new limitation will classify the entire 3M Menomonie facility as a synthetic minor for PSD regulation purposes and has been included in construction permit 04-SJZ-142 and operation permit 617056660-P01.

Prior to construction permit 04-SJZ-142, operation permit 617056660-P01, and the Environmental Cooperative Agreement between 3M and the Department, all divisions at the 3M Menomonie facility were considered separate facilities with separate facility identification numbers. When new processes were permitted as separate facilities, 3M voluntarily chose to restrict emissions to remain a minor source under sections NR 405 through NR 407 of the Wis. Adm. Code regardless if sections NR 405 through 407 of the Wis. Adm. Code applied. The emission limitations for new processes (separate facilities) were established voluntarily and were not subject to PSD requirements when they were permitted under New Source Review. Now that all processes and divisions are permitted as one facility under construction permit 04-SJZ-142 and operation permit 617056660-P01, the facility will still be considered a PSD minor source with the established VOC limit of 20.75 tons per month, averaged over any 12 consecutive months, for the entire facility.

Construction Permit 04-SJZ-142 – Construction permit 04-SJZ-142 is being issued in conjunction with operation permit 617056660-P01 to allow the construction and operation of specific processes (spray/paint booth coating, ceramic fiber making, chromium plating, R&D/pilot/development projects, and web coating) listed in Part III.A of construction permit 04-SJZ-142 and operation permit 617056660-P01. Fees for the construction of these processes are included in the preliminary determination for construction permit 04-SJZ-142 and operation permit 617056660-P01 and the facility will be charged accordingly. These processes will be constructed and operated according to requirements in Part III of construction permit 04-SJZ-142 and operation permit 617056660-P01. Any new process/facility change not listed in Part III.A. of construction permit 04-SJZ-142 and operation permit 617056660-P01 will be required to obtain a construction permit according to the traditional NR 406, Wis. Adm. Code, construction permitting program. Because construction permit 04-SJZ-142 is being issued in conjunction with operation permit 617056660-P01 that allows the construction and operation of specific processes listed in Part III.A of construction permit 04-SJZ-142 and operation permit 617056660-P01 according to conditions outlined in Part III of this permit, a source specific revision to Wisconsin's State Implementation Plan (SIP) is not necessary. Because Part III of construction permit 04-SJZ-142 and operation permit 617056660-P01 is the basis of the CEA granting construction and operation of processes listed in Part III.A. under operation permit 617056660-P01 and construction permit 04-SJZ-142, construction permit 04-SJZ-142 will expire on the same day as the CEA or October 1, 2007.

Upon issuing operation permit 617056660-P01, the facility has requested revising permit limitations established in previous construction permits. Because these changes to the permit limitations were prohibited in previous construction permits, a construction permit (04-SJZ-142) is required per s. NR 406.04(2)(a), Wis. Adm. Code. Construction permit 04-SJZ-142 will be issued in conjunction with operation permit 617056660-P01.

Under construction permit 03-JAJ-055, the Latest Available Control Techniques and Operating Practices Demonstrating Best Current Technology (LACT) determination for chrome plating #2 process P08 was defined as a VOC emission limit of 833 pounds per month, based on a 12-month rolling average (5.0 tons per year). The facility has requested replacing the VOC limit of 833 pounds per month with an equivalent workpractice limit for the LACT determination for chrome plating #2 process P08. The LACT determination for chrome plating #2 process P08 is the following workpractice: cleaning shall be performed using only isopropyl alcohol (IPA) which is applied to parts using squeegee bottles which are no larger than 1-liter in volume, and no more than 475 1-liter squeegee bottles used per month, based on a 12-month rolling average, or an equivalent combination of bottles of different volume which results in VOC emissions of no more than 833 pounds per month, based on a 12-month rolling average (5.0 tons per year).

Changing the VOC emission limit established in construction permit 03-JAJ-055 will be accomplished by issuing the operation permit (CONOP) for construction permit 03-JAJ-055, identified as permit number 03-JAJ-055-OP, and by issuing construction permit 04-SJZ-142. The CONOP for construction permit 03-JAJ-055 will be issued in conjunction with construction permit 04-SJZ-142 and operation permit 617056660-P01.

This change in permit limitations is considered a modification, requiring a construction permit, therefore construction permit 04-SJZ-142 will be issued in conjunction with operation permit 617056660-P01. Please see permit operation permit 617056660-P01 and construction permit 04-SJZ-142. Please note that the infeasibility of controlling emissions by 85% for the chrome plating #2 process P08 has not changed, only what is defined as the LACT determination has changed.

The facility has requested replacing the coating usage limits for the automated spray coating line process P09 established in construction permit 95-MMH-616-R1 with an equivalent total VOC limit of 2,337 pounds per month of VOC averaged over 12 months process limit. The coating usage limits for the automated spray coating line process P09 established in construction permit 95-MMH-616-R1 are:

- 187 gallons per month of the Scotchclad in all coating booths, as determined by an average over 12 consecutive months,
- 71.5 gallons per month of the Thinner in all coating booths, as determined by an average over 12 consecutive months,
- 45 gallons per month of isopropyl alcohol (IPA) in all coating booths, as determined by an average over 12 consecutive months,
- 1 gallon per month of the methyl ethyl ketone (MEK) in all coating booths, as determined by an average over 12 consecutive months, and

- 15 gallons per month of Naptha in all coating booths, as determined by an average over 12 consecutive months.

These usage limits listed above, established in construction permit 95-MMH-616-R1, are equivalent to 2,337 pounds per month of VOC averaged over 12 months. The change of usage limits established in construction permit 95-MMH-616-R1 to the 2,337 pounds per month averaged over 12 months, will be accomplished by issuing the operation permit (CONOP) for construction permit 95-MMH-616-R1, identified as permit number 95-MMH-616-R1-OP, and by issuing construction permit 04-SJZ-142. The CONOP for construction permit 95-MMH-616-R1 will be issued in conjunction with construction permit 04-SJZ-142 and operation permit 617056660-P01.

This change in permit limitations is considered a modification, requiring a construction permit, therefore construction permit 04-SJZ-142 will be issued in conjunction with operation permit 617056660-P01. Please see permit operation permit 617056660-P01 and construction permit 04-SJZ-142.

The total facility limit of 249 tons per year of VOC does not replace the individual limits established in construction permit 95-MMH-616-R1 because the automated spray coating line process P09 was permitted as a minor Part 70 source and the entire facility currently is considered a major Part 70 source. Construction permit 95-MMH-616-R1 would have to be reevaluated at major Part 70 source emission rates for the usage limits to be replaced with the total facility limit of 249 tons per year of VOC.

Construction Permit 04-SJZ-145-EXM - 3M Menomonie has submitted an application for construction of a new film coating line MRC 6 (process P21). The installation of MRC 6 has been determined to be exempt from construction permitting requirements. The installation of MRC 6 has been approved under exempt construction permit 04-SJZ-145-EXM on June 21, 2004. The film coating line MRC 6 (process P21) will be included in construction permit 04-SJZ-142 and operation permit 617056660-P01.

Construction Permits Issued with Operation Permit 617056660-P01

The facility has decided to revise limitations established in previous construction permits therefore construction permit 04-SJZ-142 will be issued in conjunction with operation permit 617056660-P01. Construction permit 04-SJZ-142 is also being issued in conjunction with operation permit 617056660-P01 to allow the construction and operation of specific processes (spray/paint booth coating, ceramic fiber making, chromium plating, R&D/pilot/development projects, and web coating) listed in Part III.A of construction permit 04-SJZ-142 and operation permit 617056660-P01.

Operation Permits (CONOP) Issued with Operation Permit 617056660-P01

The replacement of usage limits established in construction permit 95-MMH-616-R1 with an equivalent limit of 2,337 pounds per month of VOC averaged over 12 months will be accomplished by issuing the operation permit (CONOP) for construction permit 95-MMH-616-R1, identified as permit number 95-MMH-616-R1-OP, and by issuing construction permit 04-SJZ-142. The CONOP for construction permit 95-MMH-616-R1 was never issued. The CONOP for construction permit 95-MMH-616-R1 will be issued in conjunction with construction permit 04-SJZ-142 and operation permit 617056660-P01.

Revising the determination for the LACT analysis established in construction permit 03-JAJ-055 will be accomplished by issuing the operation permit (CONOP) for construction permit 03-JAJ-055, identified as permit number 03-JAJ-055-OP, and by issuing construction permit 04-SJZ-142. The CONOP for construction permit 03-JAJ-055 has not been issued yet. The CONOP for construction permit 03-JAJ-055

will be issued in conjunction with construction permit 04-SJZ-142 and operation permit 617056660-P01.

Environmental Assessment (EA)

3M has decided to limit the potential to emit emissions (after controls) from the projects/facility changes to spray/paint booth coating, ceramic fiber making, chromium plating, R&D/pilot/development projects, and web coating listed in Part III.A. of construction permit 04-SJZ-142 and operation permit 617056660-P01 to less than 100 tons per year for carbon monoxide, oxides of nitrogen, particulate matter, sulfur dioxide, volatile organic compounds, lead, or lead compounds. Because potential to emit emissions (after controls) are limited to less than 100 tons per year for carbon monoxide, oxides of nitrogen, particulate matter, sulfur dioxide, volatile organic compounds, lead, or lead compounds, an environmental assessment is not required under section NR 150.03(8)(b)1, Wis. Adm. Code.

Significant and Insignificant Emissions Units.

1. Process P01 – Emission Unit Information.

Process Parameter	Description
Process/boiler/furnace/ number:	P01
Unit description:	Kewaunee Boiler
Control technology status:	False
Maximum continuous rating (MMBTU/hr):	21 Million BTU/hr
Date of construction or last modification:	Installed 9/13/96
Construction Permit Requirements:	96-MMH-607

a. Process P01 – Process Fuel Information.

Fuel Parameter	Primary Fuel	Backup Fuel #1
Fuel Name:	Natural Gas	No. 2 Fuel Oil
Higher Heating Value:	1,000 BTU/CF	140,000 BTU/gal
Maximum Sulfur Content (weight %):	-	0.05
Maximum Ash Content (weight %):	-	-
Maximum hourly consumption:	21,000 ft ³ /hr	150 gal/hr

b. Stack S01 – Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S01	Exhaust flow rate, normal (ACFM):	3,121
Exhausting Unit(s):	P01	Exhaust gas temperature, normal (°F):	400

b. Stack S01 — Stack Information.

Stack Parameter	Description	Stack Parameter	Description
This stack has an actual exhaust point:	Yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	36 ft. 6 in.	Stack equipped with any obstruction:	No
Inside dimensions at outlet (ft):	2 ft. 0 in.		

2. Process P02 — Emission Unit Information.

Process Parameter	Description
Process/boiler/furnace/ number:	P02
Unit description:	Kewaunee
Control technology status:	False
Maximum continuous rating (MMBTU/hr):	13.3 Million BTU/hr
Date of construction or last modification:	Installed 07/07/74
Construction Permit Requirements:	No need for construction permit, Pre-1975

a. Process P02 — Process Fuel Information.

Fuel Parameter	Primary Fuel	Backup Fuel #1
Fuel Name:	Natural Gas	No. 2 Fuel Oil
Higher Heating Value:	1,000 BTU/CF	140,000 BTU/gal
Maximum Sulfur Content (weight %):	-	0.05
Maximum Ash Content (weight %):	-	-
Maximum hourly consumption:	13,300 ft ³ /hr	95 gal/hr

b. Stack S02 — Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S02	Exhaust flow rate, normal (ACFM):	3,121
Exhausting Unit(s):	P02	Exhaust gas temperature, normal (°F):	400
This stack has an actual exhaust point:	Yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	34 ft. 0 in.	Stack equipped with any obstruction:	No

b. Stack S02 — Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Inside dimensions at outlet (ft):	1 ft. 0 in.		

3. Process P03 — Emission Unit Information.

Process Parameter	Description
Process/boiler/furnace/ number:	P03
Unit description:	Cleaver Brooks Boiler
Control technology status:	False
Maximum continuous rating (MMBTU/hr):	16.7 Million BTU/hr
Date of construction or last modification:	Installed 05/01/80
Construction Permit Requirements:	NS-79-17-110

a. Process P03 — Process Fuel Information.

Fuel Parameter	Primary Fuel	Backup Fuel #1
Fuel Name:	Natural Gas	No. 2 Fuel Oil
Higher Heating Value:	1,000 BTU/CF	140,000 BTU/gal
Maximum Sulfur Content (weight %):	-	0.05
Maximum Ash Content (weight %):	-	Negligible
Maximum hourly consumption:	13,300 ft ³ /hr	119 gal/hr

Note: Application for operation permit 617056660-P01 did not list natural gas as a fuel burned in boiler P03 and was an error. Boiler P03 does have the capability to burn natural gas.

b. Stack S03 — Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S03	Exhaust flow rate, normal (ACFM):	4,250
Exhausting Unit(s):	P03	Exhaust gas temperature, normal (°F):	325
This stack has an actual exhaust point:	Yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	30 ft. 0 in.	Stack equipped with any obstruction:	No
Inside dimensions at outlet (ft):	1 ft. 0 in.		

4. Process P04 – Emission Unit Information.

Process Parameter	Description
Process/boiler/furnace/ number:	P04
Unit description:	ABCO Fire-tube Boiler
Control technology status:	False
Maximum continuous rating (MMBTU/hr):	10.5 Million BTU/hr
Date of construction or last modification:	Installed 06/06/89
Construction Permit Requirements:	89-TEW-616

a. Process P04 – Process Fuel Information.

Fuel Parameter	Primary Fuel	Backup Fuel #1
Fuel Name:	Natural Gas	No. 2 Fuel Oil
Higher Heating Value:	1,000 BTU/CF	140,000 BTU/gal
Maximum Sulfur Content (weight %):	-	0.05
Maximum Ash Content (weight %):	-	-
Maximum hourly consumption:	10,500 ft ³ /hr	75 gal/hr

b. Stack S04 – Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S04	Exhaust flow rate, normal (ACFM):	3,983
Exhausting Unit(s):	P04	Exhaust gas temperature, normal (°F):	375
This stack has an actual exhaust point:	Yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	35 ft. 0 in.	Stack equipped with any obstruction:	No
Inside dimensions at outlet (ft):	2 ft. 0 in.		

5. Process P05 – Emission Unit Information.

Process Parameter	Description
Process/boiler/furnace/ number:	P05
Unit description:	ABCO Fire-tube Boiler

5. Process P05 – Emission Unit Information.

Process Parameter	Description
Control technology status:	False
Maximum continuous rating (MMBTU/hr):	10.5 million BTU/hr
Date of construction or last modification:	Installed 06/06/89
Construction Permit Requirements:	89-TEW-616

a. Process P05 – Process Fuel Information.

Fuel Parameter	Primary Fuel	Backup Fuel #1
Fuel Name:	Natural Gas	No. 2 Fuel Oil
Higher Heating Value:	1,000 BTU/CF	140,000 BTU/gal
Maximum Sulfur Content (weight %):	-	0.05
Maximum Ash Content (weight %):	-	-
Maximum hourly consumption:	10,500 ft ³ /hr	75 gal/hr

b. Stack S05 – Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S05	Exhaust flow rate, normal (ACFM):	3,983
Exhausting Unit(s):	P05	Exhaust gas temperature, normal (°F):	375
This stack has an actual exhaust point:	Yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	35 ft. 0 in.	Stack equipped with any obstruction:	No
Inside dimensions at outlet (ft):	2 ft. 0 in.		

6. Process P06 – Emission Unit Information.

Process Parameter	Description
Process/boiler/furnace/ number:	P06
Unit description:	MRC-5 Coating Line (Insignificant source)
Control technology status:	False
Maximum continuous rating (MMBTU/hr):	3 million BTU/hr

6. Process P06 – Emission Unit Information.

Process Parameter	Description
Date of construction or last modification:	Installed 2003
Construction Permit Requirements:	03-JAJ-105-Permit Exemption

a. Stack S06 – Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S06	Exhaust flow rate, normal (ACFM):	TBD
Exhausting Unit(s):	P06	Exhaust gas temperature, normal (°F):	65
This stack has an actual exhaust point:	Yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	38 ft. 0 in.	Stack equipped with any obstruction:	No
Inside dimensions at outlet (ft):	TBD		

b. Stack S36 – Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S36	Exhaust flow rate, normal (ACFM):	TBD
Exhausting Unit(s):	P06	Exhaust gas temperature, normal (°F):	TBD
This stack has an actual exhaust point:	Yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	55 ft. 0 in.	Stack equipped with any obstruction:	No
Inside dimensions at outlet (ft):	TBD		

7. Process P07 – Emission Unit Information.

Process Parameter	Description
Process/boiler/furnace/ number:	P07
Unit description:	Tape Coating
Control technology status:	False
Maximum continuous rating (MMBTU/hr):	Two electric ovens
Date of construction or last modification:	Installed 1983
Construction Permit Requirements:	MIA-10-KJC-83-17-023

a. Stack S07 — Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S07	Exhaust flow rate, normal (ACFM):	2,824
Exhausting Unit(s):	P07	Exhaust gas temperature, normal (°F):	220
This stack has an actual exhaust point:	Yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	44 ft. 6 in.	Stack equipped with any obstruction:	No
Inside dimensions at outlet (ft):	1 ft. 4.6 in.		

b. Stack S22 — Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S22	Exhaust flow rate, normal (ACFM):	17,000
Exhausting Unit(s):	P07	Exhaust gas temperature, normal (°F):	128
This stack has an actual exhaust point:	Yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	44 ft. 7.2 in.	Stack equipped with any obstruction:	No
Inside dimensions at outlet (ft):	1 ft. 11.4 in.		

c. Stack S24 — Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S24	Exhaust flow rate, normal (ACFM):	2,200
Exhausting Unit(s):	P07	Exhaust gas temperature, normal (°F):	80
This stack has an actual exhaust point:	Yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	45 ft. 0 in.	Stack equipped with any obstruction:	No
Inside dimensions at outlet (ft):	1 ft. 3 in.		

Stack S49 — Stack Information. Need to update parameters here

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S49	Exhaust flow rate, normal (ACFM):	1,000
Exhausting Unit(s):	P07	Exhaust gas temperature, normal (°F):	100

Stack S49 – Stack Information. Need to update parameters here

Stack Parameter	Description	Stack Parameter	Description
This stack has an actual exhaust point:	Yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	45	Stack equipped with any obstruction:	No
Inside dimensions at outlet (ft):	1.25 ft		

8. Process P08 – Emission Unit Information.

Process Parameter	Description
Process/boiler/furnace/ number:	P08
Unit description:	Chrome Plating Tank #2
Control technology status:	Yes, C03 and C04
Maximum continuous rating (MMBTU/hr):	N/A
Date of construction or last modification:	Installed 2003
Construction Permit Requirements:	03-JAJ-055 and 03-JAJ-055-R1

a. Stack S08 – Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S08	Exhaust flow rate, normal (ACFM):	1,600
Exhausting Unit(s):	P08	Exhaust gas temperature, normal (°F):	80
This stack has an actual exhaust point:	Yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	10 ft. 8 in.	Stack equipped with any obstruction:	No
Inside dimensions at outlet (ft):	1 ft.		

b. Stack S34 – Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S34	Exhaust flow rate, normal (ACFM):	4,067
Exhausting Unit(s):	P08	Exhaust gas temperature, normal (°F):	70
This stack has an actual exhaust point:	Yes	Exhaust gas discharge direction:	Up
Discharge height above ground level	33 ft. 0 in.	Stack equipped with any obstruction:	No

b. Stack S34 — Stack Information.

Stack Parameter	Description	Stack Parameter	Description
(ft):			
Inside dimensions at outlet (ft):	1 ft. 0 in.		

c. Stack S35 — Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S35	Exhaust flow rate, normal (ACFM):	3,300
Exhausting Unit(s):	P08	Exhaust gas temperature, normal (°F):	70
This stack has an actual exhaust point:	Yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	25 ft. 0 in.	Stack equipped with any obstruction:	No
Inside dimensions at outlet (ft):	1 ft. 9 in.		

d. Control Device Information.

Properties	Description
Control Device Number:	C03
Unit Description:	Chrome scrubber and composite mesh pad system
Location:	Chrome Plating Tank (S08)
Efficiency:	<i>Pollutant Dependent</i>

e. Control Device Information.

Properties	Description
Control Device Number:	C04
Unit Description:	Fabric Filter Control System
Location:	Cladding Booth (S35)
Efficiency:	>90%, particulate matter

9. Process P09 — Emission Unit Information.

Process Parameter	Description
Process/boiler/furnace/ number:	P09
Unit description:	Automated Spray Coating Line

9. Process P09 – Emission Unit Information.

Process Parameter	Description
Control technology status:	Yes, C01
Maximum continuous rating (MMBTU/hr):	N/A
Date of construction or last modification:	Installed and Modified in 1996
Construction Permit Requirements:	96-MMH-616, 96-MMH-616-R1, and 96-MMH-616-R2

a. Stack S09 – Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S09	Exhaust flow rate, normal (ACFM):	5,250
Exhausting Unit(s):	P09	Exhaust gas temperature, normal (°F):	70
This stack has an actual exhaust point:	Y	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	26 ft. 0 in.	Stack equipped with any obstruction:	No
Inside dimensions at outlet (ft):	2 ft. 10 in.		

b. Control Device Information.

Properties	Description
Control Device Number:	C01
Unit Description:	Paint Booth Filter
Location:	Automated Spray Coating Line (S09)
Efficiency:	97%

10. Process P10 – Emission Unit Information.

Process Parameter	Description
Process/boiler/furnace/ number:	P10
Unit description:	MRC-1 Coating Line
Control technology status:	False
Transfer Efficiency (%):	100
Curing Method:	Heat treat with 0.071 MMBTU/hr electric oven

10. Process P10 – Emission Unit Information.

Process Parameter	Description
Curing Temperature (°F):	240
Date of construction or last modification:	Installed 1994, Modified 2000
Construction Permit Requirements:	00-JAS-606

a. Stack S10 – Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S10	Exhaust flow rate, normal (ACFM):	1,949
Exhausting Unit(s):	P10	Exhaust gas temperature, normal (°F):	65
This stack has an actual exhaust point:	Yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	38 ft. 0 in.	Stack equipped with any obstruction:	No
Inside dimensions at outlet (ft):	1 ft. 0 in.		

b. Stack S20 – Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S20	Exhaust flow rate, normal (ACFM):	1,238
Exhausting Unit(s):	P10	Exhaust gas temperature, normal (°F):	188
This stack has an actual exhaust point:	Yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	55 ft. 0 in.	Stack equipped with any obstruction:	No
Inside dimensions at outlet (ft):	1 ft. 8.4 in.		

11. Process P11 – Emission Unit Information.

Process Parameter	Description
Process/boiler/furnace/ number:	P11
Unit description:	MRC-2 Coating Line
Control technology status:	False
Transfer Efficiency (%):	100
Curing Method:	Heat treat with electricity

11. Process P11 – Emission Unit Information.

Process Parameter	Description
Curing Temperature (°F):	240
Date of construction or last modification:	Installed 1994, Modified 2000
Construction Permit Requirements:	00-JAS-606

a. Stack S11 – Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S11	Exhaust flow rate, normal (ACFM):	3,697
Exhausting Unit(s):	P11	Exhaust gas temperature, normal (°F):	69
This stack has an actual exhaust point:	Yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	38 ft. 0 in.	Stack equipped with any obstruction:	No
Inside dimensions at outlet (ft):	1 ft. 4 in.		

b. Stack S21 – Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S21	Exhaust flow rate, normal (ACFM):	2,282
Exhausting Unit(s):	P11	Exhaust gas temperature, normal (°F):	184
This stack has an actual exhaust point:	Yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	55 ft. 0 in.	Stack equipped with any obstruction:	No
Inside dimensions at outlet (ft):	1 ft. 4 in.		

12. Process P12 – Emission Unit Information.

Process Parameter	Description
Process/boiler/furnace/ number:	P12
Unit description:	MRC-3 Coating Line
Control technology status:	False
Transfer Efficiency (%):	100
Curing Method:	Heat treat with electricity

12. Process P12 – Emission Unit Information.

Process Parameter	Description
Curing Temperature (°F):	240
Date of construction or last modification:	Installed 1995, Modified 2000
Construction Permit Requirements:	00-JAS-606

a. Stack S12 – Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S12	Exhaust flow rate, normal (ACFM):	1,510
Exhausting Unit(s):	P12	Exhaust gas temperature, normal (°F):	100
This stack has an actual exhaust point:	Yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	32 ft. 0 in.	Stack equipped with any obstruction:	No
Inside dimensions at outlet (ft):	0 ft. 11 in. x 0 ft. 8 in.		

13. Process P13 – Emission Unit Information.

Process Parameter	Description
Process/boiler/furnace/ number:	P13
Unit description:	MRC-4 Coating Line
Control technology status:	False
Transfer Efficiency (%):	100
Curing Method:	Heat treat with electricity
Curing Temperature (°F):	240
Date of construction or last modification:	Installed 2000
Construction Permit Requirements:	00-JAS-606

a. Stack S13 – Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S13	Exhaust flow rate, normal (ACFM):	7,000
Exhausting Unit(s):	P13	Exhaust gas temperature, normal (°F):	65

a. Stack S13 — Stack Information.

Stack Parameter	Description	Stack Parameter	Description
This stack has an actual exhaust point:	Yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	38 ft. 0 in.	Stack equipped with any obstruction:	No
Inside dimensions at outlet (ft):	2 ft. 0 in.		

b. Stack S23 — Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S23	Exhaust flow rate, normal (ACFM):	2,700
Exhausting Unit(s):	P13	Exhaust gas temperature, normal (°F):	200
This stack has an actual exhaust point:	Yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	50 ft. 0 in.	Stack equipped with any obstruction:	No
Inside dimensions at outlet (ft):	2 ft. 0 in.		

14. Process P14 — Emission Unit Information.

Process Parameter	Description
Process/boiler/furnace/ number:	P14
Unit description:	Chrome Plating Tank
Control technology status:	Yes, (C02)
Transfer Efficiency (%):	100
Curing Method:	Heat treat with electricity
Curing Temperature (°F):	240
Date of construction or last modification:	Installed 1996
Construction Permit Requirements:	97-MMH-605

a. Stack S14 — Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S14	Exhaust flow rate, normal (ACFM):	950
Exhausting Unit(s):	P14	Exhaust gas temperature, normal (°F):	72

a. Stack S14 — Stack Information.

Stack Parameter	Description	Stack Parameter	Description
This stack has an actual exhaust point:	Yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	38 ft. 0 in.	Stack equipped with any obstruction:	No
Inside dimensions at outlet (ft):	0 ft. 10 in.		

b. Control Device Information.

Properties	Description
Control Device Number:	C02
Unit Description:	Composite Mesh Pad System
Location:	Chrome Plating Tank (S14)

15. Process P15 — Emission Unit Information.

Process Parameter	Description
Process/boiler/furnace/ number:	P15
Unit description:	CF1 Ceramic Fiber Making Process
Control technology status:	True, C05
Maximum Input (lb/yr):	150,000
Heat Input (MMBTU):	0.12, electric
Date of construction or last modification:	Installed 1991, Last Modified 2004
Construction Permit Requirements:	95-MM-607, 01-JAS-609, 01-JAS-630, and 03-JAJ-240

a. Stack S15 — Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S15	Exhaust flow rate, normal (ACFM):	170
Exhausting Unit(s):	P15	Exhaust gas temperature, normal (°F):	130
This stack has an actual exhaust point:	Yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	34 ft. 0 in.	Stack equipped with any obstruction:	No
Inside dimensions at outlet (ft):	0 ft. 3 in.		

b. Stack S25 — Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S25	Exhaust flow rate, normal (ACFM):	4,620
Exhausting Unit(s):	P15	Exhaust gas temperature, normal (°F):	110
This stack has an actual exhaust point:	Yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	34 ft. 0 in.	Stack equipped with any obstruction:	No
Inside dimensions at outlet (ft):	1 ft. 4.8 in.		

c. Stack S43 — Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S43	Exhaust flow rate, normal (ACFM):	3,000
Exhausting Unit(s):	P15	Exhaust gas temperature, normal (°F):	750
This stack has an actual exhaust point:	Yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	38 ft. 0 in.	Stack equipped with any obstruction:	No
Inside dimensions at outlet (ft):	2.0 ft.		

d. Stack S44 — Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S44	Exhaust flow rate, normal (ACFM):	TBD
Exhausting Unit(s):	P15	Exhaust gas temperature, normal (°F):	TBD
This stack has an actual exhaust point:	Yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	TBD	Stack equipped with any obstruction:	No
Inside dimensions at outlet (ft):	TBD		

e. Stack S45 — Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S45	Exhaust flow rate, normal (ACFM):	TBD
Exhausting Unit(s):	P15	Exhaust gas temperature, normal (°F):	TBD

e. Stack S45 — Stack Information.

Stack Parameter	Description	Stack Parameter	Description
This stack has an actual exhaust point:	Yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	TBD	Stack equipped with any obstruction:	No
Inside dimensions at outlet (ft):	TBD		

f. Control Device Information.

Properties	Description
Control Device Number:	C05
Unit Description:	Thermal Oxidizer
Control efficiency:	80.4% (average) VOC, 40.8% (average) Formaldehyde

16. Process P16 — Emission Unit Information.

Process Parameter	Description
Process/boiler/furnace/ number:	P16
Unit description:	CF2 Ceramic Fiber Making Process
Control technology status:	False
Maximum Input (lb/yr):	100,000
Heat Input (MMBTU):	0.12, electric
Date of construction or last modification:	Installed 1991, Last Modified 2004
Construction Permit Requirements:	95-MM-607, 01-JAS-609, 01-JAS-630, and 03-JAJ-240

a. Stack S16 — Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S16	Exhaust flow rate, normal (ACFM):	240
Exhausting Unit(s):	P16	Exhaust gas temperature, normal (°F):	130
This stack has an actual exhaust point:	Yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	27 ft. 0 in.	Stack equipped with any obstruction:	No
Inside dimensions at outlet (ft):	0 ft. 3.0 in.		

b. Stack S26 — Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S26	Exhaust flow rate, normal (ACFM):	5,440
Exhausting Unit(s):	P16	Exhaust gas temperature, normal (°F):	105
This stack has an actual exhaust point:	Yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	34 ft. 8.4 in.	Stack equipped with any obstruction:	No
Inside dimensions at outlet (ft):	1 ft. 4.6 in.		

c. Stack S43 — Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S43	Exhaust flow rate, normal (ACFM):	3,000
Exhausting Unit(s):	P16	Exhaust gas temperature, normal (°F):	750
This stack has an actual exhaust point:	Yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	38 ft. 0 in.	Stack equipped with any obstruction:	No
Inside dimensions at outlet (ft):	2.0 ft.		

d. Stack S44 — Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S44	Exhaust flow rate, normal (ACFM):	TBD
Exhausting Unit(s):	P16	Exhaust gas temperature, normal (°F):	TBD
This stack has an actual exhaust point:	Yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	TBD	Stack equipped with any obstruction:	No
Inside dimensions at outlet (ft):	TBD		

e. Stack S46 — Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S46	Exhaust flow rate, normal (ACFM):	TBD
Exhausting Unit(s):	P16	Exhaust gas temperature, normal (°F):	TBD

e. Stack S46 – Stack Information.

Stack Parameter	Description	Stack Parameter	Description
This stack has an actual exhaust point:	Yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	TBD	Stack equipped with any obstruction:	No
Inside dimensions at outlet (ft):	TBD		

c. Control Device Information.

Properties	Description
Control Device Number:	C05
Unit Description:	Thermal Oxidizer
Control efficiency:	80.4% (ave.) VOC, 40.8% (ave.) Formaldehyde

17. Process P17 – Emission Unit Information.

Process Parameter	Description
Process/boiler/furnace/ number:	P17
Unit description:	CF3 Ceramic Fiber Making Process
Control technology status:	False
Maximum Input (lb/yr):	200,000
Heat Input (MMBTU):	0.3, electric
Date of construction or last modification:	Installed 1994, Last Modified 2004
Construction Permit Requirements:	95-MM-607, 01-JAS-609, 01-JAS-630, and 03-JAJ-240

a. Stack S17 – Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S17	Exhaust flow rate, normal (ACFM):	370
Exhausting Unit(s):	P17	Exhaust gas temperature, normal (°F):	153
This stack has an actual exhaust point:	Yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	28 ft. 6 in.	Stack equipped with any obstruction:	No
Inside dimensions at outlet (ft):	0 ft. 6 in.		

b. Stack S27 — Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S27	Exhaust flow rate, normal (ACFM):	1,490
Exhausting Unit(s):	P17	Exhaust gas temperature, normal (°F):	318
This stack has an actual exhaust point:	Yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	39 ft. 5 in.	Stack equipped with any obstruction:	No
Inside dimensions at outlet (ft):	1 ft. 0 in.		

c. Stack S30 — Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S30	Exhaust flow rate, normal (ACFM):	380
Exhausting Unit(s):	P17	Exhaust gas temperature, normal (°F):	85
This stack has an actual exhaust point:	Yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	28 ft. 0 in.	Stack equipped with any obstruction:	No
Inside dimensions at outlet (ft):	1 ft. 6 in. x 1 ft. 3 in.		

18. Process P18 — Emission Unit Information.

Process Parameter	Description
Process/boiler/furnace/ number:	P18
Unit description:	CF4 Ceramic Fiber Making Process
Control technology status:	False
Maximum Input (lb/yr):	100,000
Heat Input (MMBTU):	0.10, electric
Date of construction or last modification:	Installed 1986, Last Modified 2004
Construction Permit Requirements:	95-MM-607, 01-JAS-609, 01-JAS-630, and 03-JAJ-240

a. Stack S18 — Stack Information.

Stack Parameter	Description	Stack Parameter	Description
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a. Stack S18 — Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S18	Exhaust flow rate, normal (ACFM):	240
Exhausting Unit(s):	P18	Exhaust gas temperature, normal (°F):	130
This stack has an actual exhaust point:	Yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	27 ft. 3.6 in.	Stack equipped with any obstruction:	No
Inside dimensions at outlet (ft):	2 ft. 0 in.		

b. Stack S28 — Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S28	Exhaust flow rate, normal (ACFM):	5,180
Exhausting Unit(s):	P18	Exhaust gas temperature, normal (°F):	100
This stack has an actual exhaust point:	Yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	34 ft. 9 in.	Stack equipped with any obstruction:	No
Inside dimensions at outlet (ft):	1 ft. 4.6 in.		

19. Process P19 — Emission Unit Information.

Process Parameter	Description
Process/boiler/furnace/ number:	P19
Unit description:	CF5 Ceramic Fiber Making Process
Control technology status:	True, CO5
Maximum Input (lb/yr):	150,000
Heat Input (MMBTU):	0.14, electric
Date of construction or last modification:	Installed 1989, Last Modified 2004
Construction Permit Requirements:	95-MMH-605, 95-MM-607, 01-JAS-609, 01-JAS-630, and 03-JAJ-240

a. Stack S19 — Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S19	Exhaust flow rate, normal (ACFM):	1,000

a. Stack S19 — Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Exhausting Unit(s):	P19	Exhaust gas temperature, normal (°F):	130
This stack has an actual exhaust point:	Yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	27 ft. 6 in.	Stack equipped with any obstruction:	No
Inside dimensions at outlet (ft):	0 ft. 6 in.		

b. Stack S29 — Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S29	Exhaust flow rate, normal (ACFM):	2,982
Exhausting Unit(s):	P19	Exhaust gas temperature, normal (°F):	95
This stack has an actual exhaust point:	Yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	35 ft. 9 in.	Stack equipped with any obstruction:	No
Inside dimensions at outlet (ft):	1 ft. 4 in. x 1 ft. 10 in.		

c. Stack S30 — Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S30	Exhaust flow rate, normal (ACFM):	380
Exhausting Unit(s):	P19	Exhaust gas temperature, normal (°F):	85
This stack has an actual exhaust point:	Yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	28 ft. 0 in.	Stack equipped with any obstruction:	Yes
Inside dimensions at outlet (ft):	1 ft. 6 in. x 1 ft. 3 in.		

d. Stack S43 — Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S43	Exhaust flow rate, normal (ACFM):	3000
Exhausting Unit(s):	P19	Exhaust gas temperature, normal (°F):	750
This stack has an actual exhaust point:	Yes	Exhaust gas discharge direction:	Up

d. Stack S43 – Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Discharge height above ground level (ft):	38 ft. 0 in.	Stack equipped with any obstruction:	No
Inside dimensions at outlet (ft):	2.0 ft.		

e. Stack S47 – Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S47	Exhaust flow rate, normal (ACFM):	TBD
Exhausting Unit(s):	P19	Exhaust gas temperature, normal (°F):	TBD
This stack has an actual exhaust point:	Yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	TBD	Stack equipped with any obstruction:	No
Inside dimensions at outlet (ft):	TBD		

f. Control Device Information.

Properties	Description
Control Device Number:	C05
Unit Description:	Thermal Oxidizer
Control efficiency:	80.4% (ave.) VOC, 40.8% (ave.) Formaldehyde

20. Process P20 – Emission Unit Information.

Process Parameter	Description
Process/boiler/furnace/ number:	P20
Unit description:	Gamma Line
Control technology status:	NONE
Maximum continuous rating (MMBTU/hr):	1.50 MMBTU/hr (Natural Gas Ovens)
Date of construction or last modification:	Installed 2004
Construction Permit Requirements:	03-JAJ-054

a. Process P20 – Process Fuel Information.

Fuel Parameter	Primary Fuel
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a. Process P20 — Process Fuel Information.

Fuel Parameter	Primary Fuel
Fuel Name:	Natural Gas
Higher Heating Value:	1050 Btu/ft ³
Maximum Sulfur Content (weight %):	N/A
Maximum Ash Content (weight %):	N/A
Maximum hourly consumption:	1,428.6 ft ³ /hr

b. Stack S31 — Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S31	Exhaust flow rate, normal (ACFM):	3,000
Exhausting Unit(s):	P20	Exhaust gas temperature, normal (°F):	250
This stack has an actual exhaust point:	Yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	35	Stack equipped with any obstruction:	No
Inside dimensions at outlet (ft):	1 ft. 6 in.		

c. Stack S32 — Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S32	Exhaust flow rate, normal (ACFM):	3,000
Exhausting Unit(s):	P20	Exhaust gas temperature, normal (°F):	250
This stack has an actual exhaust point:	Yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	35	Stack equipped with any obstruction:	No
Inside dimensions at outlet (ft):	1 ft. 6 in.		

d. Stack S33 — Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S33	Exhaust flow rate, normal (ACFM):	2,200
Exhausting Unit(s):	P20	Exhaust gas temperature, normal (°F):	700
This stack has an actual exhaust point:	Yes	Exhaust gas discharge direction:	Up

d. Stack S33 — Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Discharge height above ground level (ft):	35	Stack equipped with any obstruction:	No
Inside dimensions at outlet (ft):	1 ft. 0 in.		

21. Process P21 — Emission Unit Information.

Process Parameter	Description
Process/boiler/furnace/ number:	P21
Unit description:	MRC-6 Coating Line (Insignificant source)
Control technology status:	False
Transfer Efficiency (%):	100
Curing Method:	Heat treat with two 3.0 MMBTU/hr natural gas ovens
Curing Temperature (°F):	TBD
Date of construction or last modification:	Installed 2004
Construction Permit Requirements:	04-SJZ-145-EXM

TBD - To Be Determined

a. Stack S50 — Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S50	Exhaust flow rate, normal (ACFM):	5,000
Exhausting Unit(s):	P21	Exhaust gas temperature, normal (°F):	70
This stack has an actual exhaust point:	Yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	45 ft. 0 in.	Stack equipped with any obstruction:	No
Inside dimensions at outlet (ft):	1.46 ft. 0 in.		

TBD - To Be Determined

b. Stack S51 — Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S51	Exhaust flow rate, normal (ACFM):	10,000 (2000 min.)
Exhausting Unit(s):	P21	Exhaust gas temperature, normal (°F):	250

b. Stack S51 — Stack Information.

Stack Parameter	Description	Stack Parameter	Description
This stack has an actual exhaust point:	Yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	TBD	Stack equipped with any obstruction:	No
Inside dimensions at outlet (ft):	2.08 ft. 0 in.		

TBD - To Be Determined

c. Stack S52 — Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S52	Exhaust flow rate, normal (ACFM):	292
Exhausting Unit(s):	P21	Exhaust gas temperature, normal (°F):	450
This stack has an actual exhaust point:	Yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	45 ft. 0 in.	Stack equipped with any obstruction:	No
Inside dimensions at outlet (ft):	0.67 ft. 0 in.		

TBD - To Be Determined

d. Stack S53 — Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S53	Exhaust flow rate, normal (ACFM):	292
Exhausting Unit(s):	P21	Exhaust gas temperature, normal (°F):	450
This stack has an actual exhaust point:	Yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	45 ft. 0 in.	Stack equipped with any obstruction:	No
Inside dimensions at outlet (ft):	0.67 ft. 0 in.		

TBD - To Be Determined

22. Process P22 — Emission Unit Information.

Process Parameter	Description
Process/boiler/furnace/ number:	P22
Unit description:	CF6 Ceramic Fiber Firing
Control technology status:	True, C05

22. Process P22 – Emission Unit Information.

Process Parameter	Description
Date of construction or last modification:	Installed 2004
Construction Permit Requirements:	Yes, 03-JAJ-240

a. Stack S40 – Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S40	Exhaust flow rate, normal (ACFM):	TBD
Exhausting Unit(s):	P22	Exhaust gas temperature, normal (°F):	TBD
This stack has an actual exhaust point:	Yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	TBD	Stack equipped with any obstruction:	No
Inside dimensions at outlet (ft):	TBD		

TBD – To Be Determined

b. Stack S41 – Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S41	Exhaust flow rate, normal (ACFM):	370
Exhausting Unit(s):	P22	Exhaust gas temperature, normal (°F):	130
This stack has an actual exhaust point:	Yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	27 ft. 6 in.	Stack equipped with any obstruction:	No
Inside dimensions at outlet (ft):	0 ft. 6 in.		

c. Stack S42 – Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S42	Exhaust flow rate, normal (ACFM):	TBD
Exhausting Unit(s):	P22	Exhaust gas temperature, normal (°F):	TBD
This stack has an actual exhaust point:	Yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	TBD	Stack equipped with any obstruction:	No
Inside dimensions at outlet (ft):	TBD		

TBD – To Be Determined

d. Stack S43 — Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S43	Exhaust flow rate, normal (ACFM):	3,000
Exhausting Unit(s):	P22	Exhaust gas temperature, normal (°F):	750
This stack has an actual exhaust point:	Yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	38 ft. 0 in.	Stack equipped with any obstruction:	No
Inside dimensions at outlet (ft):	2.0 ft.		

e. Stack S48 — Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S48	Exhaust flow rate, normal (ACFM):	TBD
Exhausting Unit(s):	P22	Exhaust gas temperature, normal (°F):	TBD
This stack has an actual exhaust point:	Yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	TBD	Stack equipped with any obstruction:	No
Inside dimensions at outlet (ft):	TBD		

f. Control Device Information.

Properties	Description
Control Device Number:	C05
Unit Description:	Thermal Oxidizer
Control efficiency:	80.4% (ave.) VOC, 40.8% (ave.) Formaldehyde
Maximum continuous rating (MMBTU/hr):	2.0 Million BTU/hr

23. Process I1 — Emission Unit Information.

Process Parameter	Description
Process/boiler/furnace/ number:	I1 (Insignificant Source)
Unit description:	Copper Plating
Control technology status:	False

23. Process I1 – Emission Unit Information.

Process Parameter	Description
Maximum continuous rating (MMBTU/hr):	N/A
Date of construction or last modification:	Installed 2003
Construction Permit Requirements:	03-JAJ-055

a. Stack S37 – Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S37	Exhaust flow rate, normal (ACFM):	TBD
Exhausting Unit(s):	I21	Exhaust gas temperature, normal (°F):	TBD
This stack has an actual exhaust point:	Yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	TBD	Stack equipped with any obstruction:	No
Inside dimensions at outlet (ft):	TBD		

b. Stack S38 – Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S38	Exhaust flow rate, normal (ACFM):	TBD
Exhausting Unit(s):	I21	Exhaust gas temperature, normal (°F):	TBD
This stack has an actual exhaust point:	Yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	TBD	Stack equipped with any obstruction:	No
Inside dimensions at outlet (ft):	TBD		

c. Stack S39 – Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Stack Identification Number:	S39	Exhaust flow rate, normal (ACFM):	TBD
Exhausting Unit(s):	I21	Exhaust gas temperature, normal (°F):	TBD
This stack has an actual exhaust point:	Yes	Exhaust gas discharge direction:	Up
Discharge height above ground level (ft):	TBD	Stack equipped with any obstruction:	No

c. Stack S39 – Stack Information.

Stack Parameter	Description	Stack Parameter	Description
Inside dimensions at outlet (ft):	TBD		

Stack Parameter Summary.

Stack ID	Actual Exhaust Point or Fugitive	Circular or Rectangular	Discharge Direction	Exhaust Obstacle	Diameter or Width (if rect.)	Length (if rect.)	Height	Temp.	Normal Flow Rate	Maximum Flow Rate
			U, D, H	True/False	ft (m)	ft (m)	ft (m)	°F	ACFM	ACFM
S01	Actual	Circular	U	False	2 ft. 0 in. (0.6096 m)	0 ft. 0 in. (m)	36 ft. 6 in. (11.1252 m)	400	3121	5202
S02	Actual	Circular	U	False	1 ft. 0 in. (0.3048 m)	0 ft. 0 in. (m)	34 ft. 0 in. (10.3632 m)	400	3121	5202
S03	Actual	Circular	U	False	1 ft. 0 in. (0.3048 m)	0 ft. 0 in. (m)	30 ft. 0 in. (9.144 m)	325	4250	4250
S04	Actual	Circular	U	False	2 ft. 0 in. (0.6096 m)	0 ft. 0 in. (m)	35 ft. 0 in. (10.668 m)	375	3983	3983
S05	Actual	Circular	U	False	2 ft. 0 in. (0.6096 m)	0 ft. 0 in. (m)	35 ft. 0 in. (10.668 m)	375	3983	3983
S06	Actual	Circular		False	TBD	TBD	38 ft. 0 in. (11.582 m)	65	TBD	TBD
S07	Actual	Circular	U	False	1 ft. 4.6 in. (0.420624 m)	0 ft. 0 in. (m)	44 ft. 6 in. (13.5636 m)	220	2824	2824
S08	Actual	Circular	U	False	1 ft. 0 in. (0.3048 m)	0 ft. 0 in. (m)	10 ft. 8 in. (3.2512 m)	80	1600	1600
S09	Actual	Circular	U	False	2 ft. 10 in. (0.862584 m)	0 ft. 0 in. (m)	26 ft. 0 in. (7.9248 m)	70	5250	5250
S10	Actual	Circular	U	False	1 ft. 0 in. (0.3048 m)	0 ft. 0 in. (m)	38 ft. 0 in. (11.5824 m)	65	1949	1949
S11	Actual	Circular	U	False	1 ft. 4 in. (0.405384 m)	0 ft. 0 in. (m)	38 ft. 0 in. (11.5824 m)	69	3697	3697
S12	Actual	Rectangular	U	False	0 ft. 11 in. (0.280416 m)	0 ft. 8 in. (0.204216 m)	32 ft. 0 in. (9.7536 m)	100	1510	1560
S13	Actual	Circular	U	False	2 ft. 0 in. (0.6096 m)	0 ft. 0 in. (m)	38 ft. 0 in. (11.5824 m)	65	7000	7000
S14	Actual	Circular	U	False	0 ft. 10 in. (0.2538984 m)	0 ft. 0 in. (m)	38 ft. 0 in. (11.5824 m)	72	950	950
S15	Actual	Circular	U	False	0 ft. 3 in. (0.0762 m)	0 ft. 0 in. (m)	34 ft. 0 in. (10.3632 m)	130	170	170
S16	Actual	Circular	U	False	1 ft. 4.6 in. (0.4212336 m)	0 ft. 0 in. (m)	27 ft. 0 in. (8.2296 m)	130	240	240
S17	Actual	Circular	U	False	0 ft. 6 in. (0.1524 m)	0 ft. 0 in. (m)	28 ft. 6 in. (8.6868 m)	153	370	370
S18	Actual	Circular	U	False	2 ft. 0 in. (0.6096 m)	0 ft. 0 in. (m)	27 ft. 3.6 in. (8.32104 m)	130	240	240
S19	Actual	Circular	U	False	0 ft. 6 in. (0.1524 m)	0 ft. 0 in. (m)	27 ft. 6 in. (8.382 m)	130	1000	1000
S20	Actual	Circular	U	False	1 ft. 8.4 in. (0.51816 m)	0 ft. 0 in. (m)	55 ft. 0 in. (16.764 m)	188	1238	1238
S21	Actual	Circular	U	False	1 ft. 4 in. (0.405384 m)	0 ft. 0 in. (m)	55 ft. 0 in. (16.764 m)	184	2282	2282

Stack ID	Actual Exhaust Point or Fugitive	Circular or Rectangular	Discharge Direction U, D, H	Exhaust Obstacle True/False	Diameter or Width (if rect.) ft (m)	Length (if rect.) ft (m)	Height ft (m)	Temp. °F	Normal Flow Rate ACFM	Maximum Flow Rate ACFM
S22	Actual	Circular	U	False	1 ft. 11.4 in. (0.59436 m)	0 ft. 0 in. (m)	44 ft. 7.2 in. (13.59408 m)	128	17000	19300
S23	Actual	Circular	U	False	2 ft. 0 in. (0.6096 m)	0 ft. 0 in. (m)	50 ft. 0 in. (15.24 m)	200	2700	2700
S24	Actual	Circular	U	False	1 ft. 3 in. (0.381 m)	0 ft. 0 in. (m)	45 ft. 0 in. (13.716 m)	80	2200	2400
S25	Actual	Circular	U	False	1 ft. 4.8 in. (0.42672 m)	0 ft. 0 in. (m)	34 ft. 0 in. (10.3632 m)	110	4620	4620
S26	Actual	Circular	U	False	1 ft. 4.8 in. (0.42672 m)	0 ft. 0 in. (m)	34 ft. 8.4 in. (10.57656 m)	105	5440	5440
S27	Actual	Circular	U	False	1 ft. 0 in. (0.3048 m)	0 ft. 0 in. (m)	39 ft. 5 in. (12.0142 m)	318	1490	1490
S28	Actual	Circular	U	False	1 ft. 4.6 in. (0.42164 m)	0 ft. 0 in. (m)	34 ft. 9.6 in. (10.60704 m)	100	5180	5180
S29	Actual	Rectangular	U	False	1 ft. 4 in. (0.4064 m)	1 ft. 10 in. (0.5588 m)	35 ft. 9 in. (10.8966 m)	95	2982	2982
S30	Actual	Rectangular	U	False	1 ft. 6 in. (0.4572 m)	1 ft. 3 in. (0.381 m)	28 ft. 0 in. (8.5344 m)	85	380	380
S31	Actual	Circular	U	False	1 ft. 6 in. (0.4572 m)	0 ft. 0 in. (m)	35 ft. 0 in. (10.668 m)	250	3000	3000
S32	Actual	Circular	U	False	1 ft. 6 in. (0.4572 m)	0 ft. 0 in. (m)	35 ft. 0 in. (10.668 m)	250	3000	3000
S33	Actual	Circular	U	False	1 ft. 0 in. (0.3048 m)	0 ft. 0 in. (m)	35 ft. 0 in. (10.668 m)	700	2200	2200
S34	Actual	Circular	U	False	1 ft. 0 in. (0.3048 m)	0 ft. 0 in. (m)	33 ft. 0 in. (10.0584 m)	70	4067	4067
S35	Actual	Circular	U	False	1 ft. 9 in. (0.5334 m)	0 ft. 0 in. (m)	25 ft. 0 in. (7.62 m)	70	3300	3300
S36	Actual	Rectangular		False	TBD	TBD	55 ft. 0 in. (16.76 m)	TBD	TBD	TBD
S37	Actual	Circular	U	False	TBD	TBD	TBD	TBD	TBD	TBD
S38	Actual	Circular	U	False	TBD	TBD	TBD	TBD	TBD	TBD
S39	Actual	Circular	U	False	TBD	TBD	TBD	TBD	TBD	TBD
S40	Actual	Circular	U	False	TBD	TBD	TBD	TBD	TBD	TBD
S41	Actual	Circular	U	False	0 ft. 6 in. (0.1524 m)	0 ft. 0 in. (m)	27 ft. 6 in. (8.382 m)	130	370	370
S42	Actual	Circular	U	False	TBD	TBD	TBD	TBD	TBD	TBD
S43	Actual	Circular	U	False	2 ft. 0 in. (0.6096 m)	0 ft. 0 in. (m)	38 ft. 0 in. (11.5824 m)	750	3000	3000
S44	Actual	Circular	U	False	TBD	TBD	TBD	TBD	TBD	TBD
S45	Actual	Circular	U	False	TBD	TBD	TBD	TBD	TBD	TBD
S46	Actual	Circular	U	False	TBD	TBD	TBD	TBD	TBD	TBD
S47	Actual	Circular	U	False	TBD	TBD	TBD	TBD	TBD	TBD
S48	Actual	Circular	U	False	TBD	TBD	TBD	TBD	TBD	TBD
S49	Actual	Circular	U	False	1 ft. 3 in. (0.381 m)	0 ft. 0 in. (m)	45 ft. 0 in. (13.716 m)	100	1000	1000

Stack ID	Actual Exhaust Point or Fugitive	Circular or Rectangular	Discharge Direction U, D, H	Exhaust Obstacle True/False	Diameter or Width (if rect.) ft (m)	Length (if rect.) ft (m)	Height ft (m)	Temp. °F	Normal Flow Rate ACFM	Maximum Flow Rate ACFM
S50	Actual	Circular	U	False	1 ft. 5.5 in. (0.4450 m)	0 ft. 0 in. (m)	45 ft. 0 in. (13.716 m)	70	5000	5000
S51	Actual	Circular	U	False	2 ft. 1 in. (0.6339 m)	0 ft. 0 in. (m)	TBD	250	200	10000
S52	Actual	Circular	U	False	0 ft. 8 in. (0.2042 m)	0 ft. 0 in. (m)	45 ft. 0 in. (13.716 m)	450	292	292
S53	Actual	Circular	U	False	0 ft. 8 in. (0.2042 m)	0 ft. 0 in. (m)	45 ft. 0 in. (13.716 m)	450	292	292

TBD – To Be Determined

Insignificant Emissions Units.

- ☒ Boiler, Turbine, and HVAC System Maintenance
- ☒ Convenience Water Heating
- ☒ Demineralization and Oxygen Scavenging of Water for Boilers
- ☒ Fire Control Equipment
- ☒ Internal Combustion Engines Used for Warehousing and Material Transport
- ☒ Janitorial Activities
- ☒ Maintenance of Grounds, Equipment, and Buildings (lawn care, painting, etc.)
- ☒ Office Activities
- ☒ Pollution Control Equipment Maintenance
- ☒ Purging of Natural Gas Lines
- ☒ Sanitary Sewer and Plumbing Venting
- ☒ Electric chiller
- ☒ Non-contact cooling tower
- ☒ Fire Pump Engine (238,000 BTU/yr)
- ☒ Welding
- ☒ Miscellaneous Tanks
- ☒ Converting (plant-wide) - this is an area where bulk product is converted into marketable/saleable products for packaging.
- ☒ Thin Film Technology Resources (TFTR)
- ☒ Semiconductor Wafer Planerization (SWP)
- ☒ Personal Care & Related Products (PC&RP)
- ☒ Tape Process Technology Center (TPTC) – Compounding Area
- ☒ Specialty Fibers & Composites (SF&C)
- ☒ Information and Materials Security Department
- ☒ Optical Systems Division (OSD)
- ☒ Proteus Group Research & Development
- ☒ Library Systems Division
- ☒ Copper Plating Process (I1)
- ☒ E-Beam Line (I2)
- ☒ Extrusion Line 1 (I3) - Personal Care & Related Products (PC&RP)
- ☒ Extrusion Line 2 (I4) - Personal Care & Related Products (PC&RP)
- ☒ Extrusion Line 3 (I5) - Personal Care & Related Products (PC&RP)
- ☒ Hot Melt Coater (I6) - Personal Care & Related Products (PC&RP)
- ☒ Elastic Coating 1 (I7) - Personal Care & Related Products (PC&RP)
- ☒ Elastic Coating 2 (I8) - Personal Care & Related Products (PC&RP)
- ☒ Film Line (I9) – Traffic Safety Systems (TSS)

CROSS MEDIA IMPACTS

For the automated spray coating line process P09, paint booth filters are considered a non-hazardous waste and are landfilled. Solid Scotchclad is also considered non-hazardous and is landfilled. Spent lacquer thinner and the nickel plating water are both considered hazardous-waste and will be disposed at 3M's hazardous waste incinerator located in Cottage Grove, MN. Any cross media impacts are expected to be negligible.

EXISTING PERMITS

3M Menomonie has been issued construction permits NS-79-17-110, MIA-10-KJC-83-17-023, 89-TEW-616, 94-MMH-610, 94-MMH-611, 95-MMH-601, 95-MM-607, 95-MMH-616, 95-MMH-616-R1, 96-MMH-607, 96-MMH-616, 97-MMH-605, 00-JAS-606, 01-JAS-609, 01-JAS-630, 03-JAJ-054, 03-JAJ-055, 03-JAJ-105, and 03-JAJ-240. The limitations from these permits are summarized below.

Construction Permit NS-79-17-110

Construction permit NS-79-17-110 permitted the installation of boiler P03. Currently, this boiler is identified as boiler P03. The permit limits established in permit NS-79-17-110 are listed below.

Permit Limitations Established in Construction Permit NS-79-17-110

Process/Stack When Permitted	Current Process/Stack Under 617056660-P01	Description	Limitations/Requirements
1. P03, S03	1. P03, S03	Boiler	1. Particulate Matter Emissions: 0.15 pounds of particulate matter per million BTU of heat input. [s. NR 415.06(2)(a), Wis. Adm. Code]

Construction Permit MIA-10-KJC-83-17-0233

Construction permit MIA-10-KJC-83-17-023 permitted the installation of the tape coater process P30, identified at the time when this permit was issued. Currently, the tape coater process is identified as process P07. The permit limits established in permit MIA-10-KJC-83-17-023 are listed below.

Permit Limitations Established in Construction Permit MIA-10-KJC-83-17-023

Process/Stack When Permitted	Current Process/Stack Under 617056660-P01	Description	Limitations/Requirements
1. P30, S30	1. P07, S07, S22, S24, S49	Tape Coating Line	1. Organic Compound Emissions: Coatings shall not contain more than 2.9 pounds per gallon, less water, as delivered of organic compounds. [s. NR 422.07(2), Wis. Adm. Code] 2. Emissions of volatile organic compounds (VOC) from the process line shall not exceed either 5,000 pounds per day or 249 tons per year. (no reference for including this limitation was listed)

Construction Permit 89-TEW-616

Construction permit 89-TEW-616 permitted the installation of boilers P04 and P05. Currently, these boiler are identified as boilers P04 and P05. The permit limits established in permit 89-TEW-616 are listed below.

Permit Limitations Established in Construction Permit 89-TEW-616

Process/Stack When Permitted	Current Process/Stack Under 617056660-P01	Description	Limitations/Requirements
1. B22, S13 2. B23, S14	1. P04, S04 2. P05, S05	Boiler	<p>1. Particulate Matter Emissions: 0.15 pounds of particulate matter per million BTU of heat input. [s. NR 415.06(2)(a), Wis. Adm. Code]</p> <p>2. Sulfur Dioxide Emissions: 5.4 pounds of sulfur dioxide per hour. [s. NR 417.025, Wis. Adm. Code]</p> <p>3. Nitrogen Oxide Emissions: 1.5 pounds of nitrogen oxide per hour. [s. NR 428.03, Wis. Adm. Code]</p>

Construction Permits 94-MMH-610

Construction permits 94-MMH-610 permitted the installation of ultraviolet curable coating line MRC 3 identified as P01, which was identified at the time this permit was issued. Currently, the ultraviolet curable coating line MRC 3 is identified as P12. The permit limits established in permit 94-MMH-610 are listed below.

Permit Limitations Established in Construction Permit 94-MMH-610

Process/Stack When Permitted	Current Process/Stack Under 617056660-P01	Description	Limitations/Requirements
1. P01, S01	1. P12, S12	MCR 3	<p>1. Volatile Organic Compound Emissions: Latest Available Control Techniques and operating practices demonstrating best current technology (LACT):</p> <p>85% control has been demonstrated to be economically infeasible, therefore LACT applies. To meet LACT for this process line, the permittee shall use an extrusion application technique and conduct studies on both UV light intensity/duration and raw material proportions for the resin system with the highest weight loss to see whether the unreacted percentage can be decreased. The VOC emissions from process P01 will also be limited to 40.0 tons per year. [s. NR 424.03(2)(c), Wis. Adm. Code]</p> <p>2. Limitations on use of raw materials:</p> <p>a. 3M may not apply resins on process P01</p>

Permit Limitations Established in Construction Permit 94-MMH-610

Process/Stack When Permitted	Current Process/Stack Under 617056660-P01	Description	Limitations/Requirements
			<p>if the VOC emissions exceed a total 6,667 lb of VOC per month (40 ton/yr). [s. NR 424.03(2)(c), Wis. Adm. Code]</p> <p>Note: This limit was voluntarily established by 3M to remain a minor source under sections NR 405 through NR 407 of the Wis. Adm. Code even though emission limitations were not required. Also, reducing emissions from new processes was required in 3M's environmental program.</p>

Construction Permits 94-MMH-611

Construction permits 94-MMH-611 permitted the installation of ultraviolet curable coating line MRC 1 identified as P02, which was identified at the time this permit was issued. Currently, the ultraviolet curable coating line MRC 1 is identified as P10. The permit limits established in permit 94-MMH-611 are listed below.

Permit Limitations Established in Construction Permit 94-MMH-611

Process/Stack When Permitted	Current Process/Stack Under 617056660-P01	Description	Limitations/Requirements
1. P02, S02	1. P10, S10, S20	MCR 1	<p>1. Volatile Organic Compound Emissions: Latest Available Control Techniques and operating practices demonstrating best current technology (LACT):</p> <p>85% control has been demonstrated to be economically infeasible, therefore LACT applies. To meet LACT for this process line, the permittee shall use an extrusion application technique and conduct studies on both UV light intensity/duration and raw material proportions for the resin system with the highest weight loss to see whether the unreacted percentage can be decreased. The VOC emissions from process P01 will also be limited to 40.0 tons per year. [s. NR 424.03(2)(c), Wis. Adm. Code]</p> <p>2. Limitations on use of raw materials:</p> <p>a. 3M may not apply resins on process P01 if the VOC emissions exceed a total 6,667 lb of VOC per month (40 ton/yr). [s. NR 424.03(2)(c), Wis. Adm. Code]</p> <p>Note: This limit was voluntarily established</p>

Permit Limitations Established in Construction Permit 94-MMH-611

Process/Stack When Permitted	Current Process/Stack Under 617056660-P01	Description	Limitations/Requirements
			by 3M to remain a minor source under sections NR 405 through NR 407 of the Wis. Adm. Code even though emission limitations were not required. Also, reducing emissions from new processes was required in 3M's environmental program.

Construction Permit 95-MMH-601

Construction permit 95-MMH-601 permitted the installation of ultraviolet curable coating line MRC 3 identified as process P03. Currently, the ultraviolet curable coating line MRC 3 is identified as P12. The permit limits established in permit 95-MMH-601 are listed below.

Permit Limitations Established in Construction Permit 95-MMH-601

Process/Stack When Permitted	Current Process/Stack Under 617056660-P01	Description	Limitations/Requirements
1. P03, S03	1. P11, S11, S21	MRC 2	<p>1. Volatile Organic Compound Emissions: Latest Available Control Techniques and operating practices demonstrating best current technology (LACT).</p> <p>85% control has been demonstrated to be economically infeasible, therefore LACT applies. To meet LACT for this process line, the permittee shall use an extrusion application technique and conduct studies on both UV light intensity/duration and raw material proportions for the resin system with the highest weight loss to see whether the unreacted percentage can be decreased. [s. NR 424.03(2)(c), Wis. Adm. Code and s. 285.65(7), Wis. Stats.]</p> <p>2. Limitations on use of raw materials:</p> <p>a. 3M may not apply resins in process P03 if the VOC emissions exceed a total 6,667 lb of VOC per month (40 ton/yr). [s. NR 424.03(2)(c), Wis. Adm. Code and s. 285.65(7), Wis. Stats.]</p> <p>This condition is included, at the request of the permittee, to document the limit on the potential to emit (PTE) of this process. This condition is based on the PTE value used in the LACT determination.</p>

Construction Permit 95-MM-607

Construction permit 95-MM-607 permitted the installation and operation of 5 ceramic fiber lines CF1, CF2, CF3, CF4, and CF5 identified as P21, P22, P23, P24, and P25. Currently, the ceramic fiber makers CF1, CF2, CF3, CF4, and CF5 are identified as P15, P16, P17, P18, and P19. The permit limits established in permits 95-MM-607 and 95-MM-607-OP are listed below.

Permit Limitations Established in Permit 95-MM-607 and 95-MM-607-OP

Process/Stack When Permitted	Current Process/Stack Under 617056660-P01	Description	Limitations/Requirements
1. P21, S21, S31; 2. P22, S22, S32; 3. P23, S23, S33, S34; 4. P24, S24, S32; 5. P25, S25, S35	1. P15, S15, S25, S43, S44, S45, C05; 2. P16, S16, S26, S43, S44, S46, C05; 3. P17, S17, S27, S30; 4. P18, S18, S28; 5. P19, S19, S29, S30, S43, S47, C05	CF1, CF2, CF3, CF4, and CF5	<p>1. Volatile Organic Compound Emissions: Latest Available Control Techniques and operating practices demonstrating best current technology (LACT). See Note 1. [s. NR 424.03(2)(c), Wis. Adm. Code]</p> <p>Note 1: According to s. NR 424.03 (2)(b), Wis. Adm. Code. process lines on which construction or modification commenced on or after August 1, 1979, and which are not subject to emission limitations listed elsewhere in chs. NR 419 to 423, Wis. Adm. Code, shall:</p> <p>1. Control organic compound emissions by at least 85%, or</p> <p>2. Where 85% control has been demonstrated to be technologically infeasible for a specific process line, control organic compound emissions by use of the latest available control techniques (LACT) and operating practices demonstrating best current technology, as approved by the department.</p> <p>The Department has determined that 85% control is economically infeasible due to excessive cost of add-on control. The Department has also determined that the present operation practices can be considered to be the latest available control technology when the facility operates at the following rate:</p> <p>a. The maximum rate of fiber solution fed to all fiber makers may not exceed 90 pounds per hour (2,130 pounds per day). This is the maximum capacity of the fiber makers reported in the application. [s. 285.65(9), Wis. Stats.]</p>

Construction Permit 95-MMH-616

Construction permit 95-MMH-616 permitted the operation of an existing spray booth P01 and the installation of two paint booths P02, and P03, identified at the time this permit was issued at the Traffic Control Materials (TCM) Division now called the Traffic Safety Systems (TSS) Division.

Permit Limitations Established in Permit 95-MMH-616

Process/Stack When Permitted	Current Process/Stack Under 617056660-P01	Description	Limitations/Requirements
1. P02, S02; 2. P03, S03	1. P09, S09	Automatic Spray Booth	<p>1. Particulate Matter Emissions: Allowable emissions are calculated by use of the equation $E = 3.59P^{0.62}$ for process weight rates up to 60,000 pounds per hour, where E is the allowable emissions in pounds per hour and P is the process weight rate in tons per hour. Based on information submitted in the permit application allowable emissions were calculated at 0.32 pounds of particulate matter per hour per paint booth.</p> <p>2. Volatile Organic Compound Emissions: The requirements established in the LACT determination are listed below:</p> <p>(a) The permittee shall install, operate and maintain high volume low pressure (HVLP) application systems on each paint booth. [s. NR 424.03(2)(c), Wis. Adm. Code and s. 285.65(3), Wis. Stats.]</p> <p>(b) The permittee shall keep and maintain on site the manufacturer's literature on the application system to demonstrate that an HVLP application system was installed. [s. NR 424.03(2)(c) and s. NR 439.04(1)(d), Wis. Adm. Code]</p> <p>(c) The permittee shall investigate water based and other coatings and coating application systems which result in lower VOC emissions. An annual report of the permittee's investigation shall be submitted to the Department on December 1, 1996 and every year thereafter. [s. NR 424.03(2)(c), Wis. Adm. Code]</p> <p>(d) The permittee shall install, calibrate, operate and maintain a device to monitor the pressure at the spray gun nozzle of the HVLP application system. [s. NR 439.055(1), Wis. Adm. Code]</p> <p>(e) The air pressure at the spray gun nozzle of the HVLP application system may be no</p>

Permit Limitations Established in Permit 95-MMH-616

Process/Stack When Permitted	Current Process/Stack Under 617056660-P01	Description	Limitations/Requirements
			<p>greater than 10 psi. [s. 285.65(3), Wis. Stats.]</p> <p>(f) The permittee shall measure and record the spray gun nozzle pressure once during each day of operation. [s. NR 439.055(5), Wis. Adm. Code and s. 285.65(3), Wis. Stats.]</p> <p>3. The permittee may not use more than a 40 gallons per month of the Scotchclad in coating booth P02, as determined by an average over 12 consecutive months. This condition is requested by the facility in order to keep emissions below the Part 70 thresholds. [s. 285.65(7), Wis. Stats.]</p> <p>4. The permittee may not use more than a 28 gallons per month of the 401 Lacquer Thinner in coating booth P02, as determined by an average over 12 consecutive months. This condition is requested by the facility in order to keep emissions below the Part 70 thresholds. [s. 285.65(7), Wis. Stats.]</p> <p>5. The permittee may not use more than a 147 gallons per month of the Scotchclad in coating booth P03, as determined by an average over 12 consecutive months. This condition is requested by the facility in order to keep emissions below the Part 70 thresholds. [s. 285.65(7), Wis. Stats.]</p> <p>6. The permittee may not use more than a 52 gallons per month of the 401 Lacquer Thinner in coating booth P03, as determined by an average over 12 consecutive months. This condition is requested by the facility in order to keep emissions below the Part 70 thresholds. [s. 285.65(7), Wis. Stats.]</p>
3. P01, S01	1. P09, S09	Automatic Spray Booth	<p>1. The permittee may not use more than a 45 gallons per month of isopropyl alcohol (IPA) in coating booth P01, as determined by an average over 12 consecutive months. This condition is requested by the facility in order to keep emissions below the Part 70 thresholds. [s. 285.65(7), Wis. Stats.]</p> <p>2. The permittee may not use more than a 1</p>

Permit Limitations Established in Permit 95-MMH-616

Process/Stack When Permitted	Current Process/Stack Under 617056660-P01	Description	Limitations/Requirements
			<p>gallon per month of the methyl ethyl ketone (MEK) in solvent cleaning booth P01, as determined by an average over 12 consecutive months. This condition is requested by the facility in order to keep emissions below the Part 70 thresholds. [s. 285.65(7), Wis. Stats.]</p> <p>3. The permittee may not use more than a 15 gallons per month of Naptha in solvent cleaning booth P01, as determined by an average over 12 consecutive months. This condition is requested by the facility in order to keep emissions below the Part 70 thresholds. [s. 285.65(7), Wis. Stats.]</p>

Construction Permit 95-MMH-616-R1

Construction permit 95-MMH-616-R1 permitted the modification to the Traffic Safety Systems (TSS), formerly Traffic Control Materials (TCM) Division, to allow for greater operational flexibility while still maintaining annual VOC emissions at its permitted limit.

On May 22, 1996, the 3M Company was issued a permit (#95-MMH-616) to construct two paint booths and operate an existing booth at its former Traffic Control Materials (TCM) Division in Menomonie. On April 23, 1997, the 3M Company requested that the department revise permit #95-MMH-616 to allow for greater operational flexibility while still maintaining annual VOC emissions at its permitted limit.

The current permit 95-MMH-616 allowed booth P01 to be used for cleaning solvents only, P02 to be used for the application of 75% of the Scotchclad coating and thinner and P03 to be used for application of 25% of the Scotchclad coating and thinner. 3M had requested that they be allowed to use booths P01 and P02 interchangeably for the application of both coating and thinner and also eliminate the use of booth P03 under permit 95-MMH-616-R1. No new guns would be installed in the operating booths. The total actual amount of Scotchclad coating and thinner used in the division would remain the same and be averaged monthly for the division as a whole.

The proposed limits would not increase emissions and would still restrict the source to its requested potential to emit of 14 TPY (total for division). The department approved the proposed limits and concured with the permittee that these changes will allow for greater operational flexibility.

When paint booths P01 and P02 were revised in permit 95-MMH-616-R1, they consisted of one automatic paint booth and one manual paint booth. Since permit 95-MMH-616-R1 was issued, the manual paint booth has been removed and only the automatic paint booth is in operation. Because the manual paint booth was removed, the paint booths are no long identified as P01 and P02. For the purpose of this review, the paint booth for the Traffic Safety Systems (TSS) division currently consists of one automatic paint booth identified as P09.

Permit Limitations Established in Permit 95-MMH-616-R1

Process/Stack When Permitted	Current Process/Stack Under 617056660-P01	Description	Limitations/Requirements
1. P01, S01; 2. P02, S02	1. P09, S09	Automatic Spray Booth	<p>1. The permittee may not use more than a combined total of 187 gallons per month of the Scotchclad in all coating booths, as determined by an average over 12 consecutive months. This condition is requested by the facility in order to keep emissions below the Part 70 thresholds. [s. 285.65(7), Wis. Stats.]</p> <p>2. The permittee may not use more than a combined total of 71.5 gallons per month of the Thinner in all coating booths, as determined by an average over 12 consecutive months. This condition is requested by the facility in order to keep emissions below the Part 70 thresholds. [s. 285.65(7), Wis. Stats.]</p> <p>3. The VOC content of thinner may not exceed 7.14 pounds of VOC per gallon of thinner. The purpose of this limit was not listed in permit 96-MMH-616-R1. [s. 285.65(7), Wis. Stats.]</p> <p>4. The permittee may not use more than a combined total of 45 gallons per month of isopropyl alcohol (IPA) in all coating booths, as determined by an average over 12 consecutive months. This condition is requested by the facility in order to keep emissions below the Part 70 thresholds. [s. 285.65(7), Wis. Stats.]</p> <p>5. The permittee may not use more than a combined total of 1 gallon per month of the methyl ethyl ketone (MEK) in all coating booths, as determined by an average over 12 consecutive months. This condition is requested by the facility in order to keep emissions below the Part 70 thresholds. [s. 285.65(7), Wis. Stats.]</p> <p>6. The permittee may not use more than a combined total of 15 gallons per month of Naptha in all coating booths, as determined by an average over 12 consecutive months. This condition is requested by the facility in order to keep emissions below the Part 70 thresholds. [s. 285.65(7), Wis. Stats.]</p>

Construction Permit 96-MMH-607

Construction permit 96-MMH-607 permitted the construction of a Johnston fire tube boiler rated at 21.0 mmBTU/hr. The permit limits established in permit 96-MMH-607 are listed below.

Permit Limitations Established in Construction Permit 96-MMH-607

Process/Stack When Permitted	Current Process/Stack Under 617056660-P01	Description	Limitations/Requirements
1. P01, S01	1. P01, S01	Boiler	<p>1. Particulate Matter Emissions: 0.15 pounds of particulate matter per million BTU of heat input. [s. NR 415.06(2)(a), Wis. Adm. Code]</p> <p>2. The permittee shall not combust fuel oil which contains greater than 0.05 weight percent sulfur. [s. NR 417.025, Wis. Adm. Code and s. 285.65(7), Wis. Stats.]</p> <p>Note: The percent sulfur limit was requested by the facility and established by modeling in order for the sulfur dioxide emissions to meet the ambient air quality standards.</p>

Construction Permit 96-MMH-616

Construction permit 96-MMH-616 is the reassigned permit number to the revision to permit 95-MMH-616. The revision to permit 95-MMH-616 has been assigned two permit numbers 95-MMH-616-R1 and 96-MMH-616, both of which are the same permit document. Please see permit 95-MMH-616-R1 for permit conditions.

Construction Permit 97-MMH-605

Construction permit 97-MMH-605 permitted the installation of the hard chromium electroplating process P04. For the purpose of this review, the hard chromium electroplating process is currently identified as chrome plating process P14 and will be identified as the chrome plating process P14 until further process identification changes occur at the 3M Menomonie facility. The permit limits established in permit 97-MMH-605 are listed below.

Permit Limitations Established in Construction Permit 97-MMH-605

Process/Stack When Permitted	Current Process/Stack Under 617056660-P01	Description	Limitations/Requirements
1. P04, C04, S04	1. P14, S14, C02	Chrome Plating Process	<p>1. Chromium Emissions: The permittee shall meet the following emission limitation: 0.015 milligrams of total chromium per dry standard cubic meter (mg/dscm) of ventilation air (6.6×10^{-6} grains per dry standard cubic foot [gr/dscf]). [s. 285.65(13), Wis. Stats. and 40 CFR 63.342(c)(1)(i)*]</p> <p>*This limit is established in 40 Code of Federal Regulations (CFR) section 63.342(c)(1)(i), which is the MACT Standard for Chromium Electroplaters.</p>

Permit Limitations Established in Construction Permit 97-MMH-605

Process/Stack When Permitted	Current Process/Stack Under 617056660-P01	Description	Limitations/Requirements
			<p>Under s. 285.65(13), Wis. Stats., Wisconsin has the authority to regulate federal MACT standards.</p> <p>2. Particulate Matter Emissions: The permittee shall meet the following emission limitation: 0.58 pounds of particulate matter per hour. See Note 1.</p> <p>Note 1: A limitation of 0.58 pounds of particulate matter for stack S14 is required in order to meet the PSD increment and National Ambient Air Quality Standards (NAAQS) for particulate matter. [285.63(1)(b), Wis. Stats.]</p>
1. P04, C04, S04	1. P14, S14, C02	Volatile Organic Compounds	<p>1. Volatile Organic Compound (VOC) Emissions - The permittee shall perform an initial emissions test for VOCs on its clean/rinse/activate/dry vesicle in order to demonstrate that daily VOC emissions do not exceed 15 pounds and that it is exempt from the requirements in ch. NR 424, Wis. Adm. Code. A mass balance may be used to determine this exemption. The test shall be performed while operating at 100% capacity. If operation at 100% capacity is not feasible, the source shall operate at a capacity level which is approved by the Department in writing. If the compliance tests cannot be conducted within 180 days after the start of initial operation, the permit holder may request and the Department may approve, in writing, an extension of time to conduct the test(s). A copy of the report on the test shall be submitted to the Department for evaluation within 60 days after the test. An operation permit may be issued only upon proof of compliance. [s. NR 439.03, Wis. Adm. Code]</p>

Construction Permit 00-JAS-606

Construction permit 00-JAS-606 installation of two new production coaters to add to their existing pilot and small production coaters. The four coaters are identified as MRC 1, process P01 - a pilot scale coater; MRC 2 and MRC 3, process P02 and P03 - two production coaters; and MRC 4, process P05 - production coater. For the purpose of this review, the MRC process coating lines MRC 1, MRC 2, MRC 3, and MRC 4 are currently identified as P10, P11, P12, and P13 and will be identified as P10, P11, P12, and P13 until further process identification changes occur at the 3M Menomonie facility. MRC process coating lines MRC 1 and MRC 2 were previously permitted under permits 94-MMH-610 and 94-MMH-

611 which were superseded by permit 00-JAS-606. MRC process coating line MRC 3 was previously permitted under permit 95-MMH-601 which was superseded by permit 00-JAS-606. Coating line MRC 5, identified as P06, was permitted under construction permit 03-JAJ-105. Please refer to 03-JAJ-105 below for details. The permit limits established in permit 00-JAS-606 are listed below.

Permit Limitations Established in Construction Permit 00-JAS-606

Process/Stack When Permitted	Current Process/Stack Under 617056660-P01	Description	Limitations/Requirements
1. P01, S01; 2. P02, S02, S03, S04, S05; 3. P03, S06, S07, S08; 4. P05, S10, S11, S12, S13	1. P10, S10, S20; 2. P11, S11, S21; 3. P12, S12; 4. P13, S13, S23	MRC 1, MRC 2, MRC 3, and MRC 4	1. Volatile Organic Compound Emissions: Latest Available Control Techniques and operating practices (LACT): See Note 1. LACT is determined to be the use of UV curable resins. Note 1: The application of control technologies to achieve 85% control of the Volatile Organic Compound emissions from this process has been determined to be infeasible under the standards applied under ch. NR 424, Wis. Adm. Code. Thus, Latest Available Control Technology and operating practices (LACT) standard of s. NR 424.03(2)(c), Wis. Adm. Code, shall apply. [s. NR 424.03(2)(c), Wis. Adm. Code; s. 285.65(3) and s. 285.65(7), Wis. Stats.] 2. PSD Prevention: The total monthly VOC usage from the project may not exceed an average of 6,650 pounds per month averaged over any 12 consecutive month period. This condition will cap the project potential to emit to less than 40 tons per year as requested by the company. This will help insure that the facility's potential to emit will remain below the significant emissions threshold under PSD. [s. NR 405.02(27), Wis. Adm. Code, s. 285.65(7), Wis. Stats.]

Construction Permit 01-JAS-609

Construction permit 01-JAS-609 permitted the redesign and modification of ceramic fiber maker number 5. This modification will allow 3M to produce a new type of fiber known at the facility as the 610 SOL family. The remaining makers, along with CF 5, will continue to produce the 312 SOL family fibers.

Permits 01-JAS-609, 01-JAS-609-OP, and 617055780-F01 permitted ceramic fiber makers CF1, CF2, CF3, CF4, and CF5 identified as P21, P22, P23, P24, and P25. The ceramic fiber makers CF1, CF2, CF3, CF4, and CF5 were previously permitted under 95-MM-607 and 95-MM-607-OP which were superseded by permits 01-JAS-609, 01-JAS-609-OP, and 617055780-F01. Currently, the ceramic fiber makers CF1, CF2, CF3, CF4, and CF5 are identified as P15, P16, P17, P18, and P19. The permit limits established in permits 01-JAS-609, 01-JAS-609-OP, and 617055780-F01 are listed below.

Permit Limitations Established in Permits 01-JAS-609, 01-JAS-609-OP, and 617055780-F01

Process/Stack When Permitted	Current Process/Stack Under 617056660-P01	Description	Limitations/Requirements
1. P21, S21, S31; 2. P22, S22, S32; 3. P23, S23, S33, S34; 4. P24, S24, S32; 5. P25, S25, S35	1. P15, S15, S25, S43, S44, S45, C05; 2. P16, S16, S26, S43, S44, S46, C05; 3. P17, S17, S27, S30; 4. P18, S18, S28; 5. P19, S19, S29, S30, S43, S47, C05	CF1, CF2, CF3, CF4, and CF5	1. Formaldehyde Emissions: Formaldehyde emissions from the facility may not exceed 19.9 pounds per month averaged over each 12 consecutive month period. [ss. NR 445.05(3)(b), Wis. Adm. Code and 285.65(7), Wis. Stats.] 2. Volatile Organic Compound Emissions: Latest Available Control Techniques and operating practices demonstrating best current technology (LACT). (a) The permittee has demonstrated that 85% control is technologically infeasible for the process line, and so shall use LACT. [s. NR 424.03(2)(c), Wis. Adm. Code] (b) LACT is defined as: 1.) The limited inputs of materials to the 3M ceramic fiber maker process. 2.) VOC emissions shall not exceed 8416 pounds per month averaged over each 12 consecutive month period. [s. NR 424.03(2)(c), Wis. Adm. Code]

Construction Permit 01-JAS-630

Construction permit 01-JAS-630 permitted the redesign and modification of composite fiber maker number 1 (CF1). This modification allowed 3M to increase production of a new type of fiber known at the facility as the 610 SOL family. All makers continued to produce the 312 SOL family fibers.

Permits 01-JAS-630, 01-JAS-630-OP, and 617055780-F02 permitted composite fiber makers CF1, CF2, CF3, CF4, and CF5 identified as P21, P22, P23, P24, and P25. The composite fiber makers CF1, CF2, CF3, CF4, and CF5 were previously permitted under 01-JAS-609, 01-JAS-609-OP, and 656055780-F01 which were superseded by permits 01-JAS-630, 01-JAS-630-OP, and 617055780-F02. Currently, the composite fiber makers CF1, CF2, CF3, CF4, and CF5 are identified as P15, P16, P17, P18, and P19. The permit limits established in permits 01-JAS-630, 01-JAS-630-OP, and 617055780-F02 are listed below.

Permit Limitations Established in Permits 01-JAS-630, 01-JAS-630-OP, and 617055780-F02

Process/Stack When Permitted	Current Process/Stack Under 617056660-P01	Description	Limitations/Requirements
1. P21, S21, S31; 2. P22, S22, S32; 3. P23, S23, S33, S34;	1. P15, S15, S25, S43, S44, S45, C05; 2. P16, S16, S26, S43, S44, S46, C05; 3. P17, S17, S27, S30; 4. P18, S18, S28;	CF1, CF2, CF3, CF4, and CF5	1. Formaldehyde Emissions: Formaldehyde emissions from the facility may not exceed 166 pounds per month averaged over each 12 consecutive month period determined by the best available control technology (BACT). [ss. NR 445.05(3)(b), Wis. Adm. Code]

Permit Limitations Established in Permits 01-JAS-630, 01-JAS-630-OP, and 617055780-F02

Process/Stack When Permitted	Current Process/Stack Under 617056660-P01	Description	Limitations/Requirements
4. P24, S24, S32; 5. P25, S25, S35	5. P19, S19, S29, S30, S43, S47, C05		285.65(7), Wis. Stats.] 2. Volatile Organic Compound Emissions: Latest Available Control Techniques and operating practices demonstrating best current technology (LACT). (a) The permittee has demonstrated that 85% control is technologically infeasible for the process line, and so shall use LACT. [s. NR 424.03(2)(c), Wis. Adm. Code] (b) LACT is defined as: 1.) The limited inputs of materials to the 3M ceramic fiber maker process. 2.) VOC emissions shall not exceed 13,500 pounds per month averaged over each 12 consecutive month period. [s. NR 424.03(2)(c), Wis. Adm. Code]

Construction Permit 03-JAJ-054

Construction permit 03-JAJ-054 permitted the construction of the gamma line process P20. The permit limits established in permits 03-JAJ-054 and 03-JAJ-054-OP are listed below.

Permit Limitations Established in Permits 03-JAJ-054 and 03-JAJ-054 -OP

Process/Stack When Permitted	Current Process/Stack Under 617056660-P01	Description	Limitations/Requirements
1. P20, S31, S32, S33	1. P20, S31, S32, S33	Gamma Line	1. Volatile Organic Compound Emissions: Latest Available Control Techniques and Operating Practices Demonstrating Best Current Technology (LACT). LACT is determined to be the following: (a) The VOC emissions from this process may not exceed 1,666 pounds per month, determined as an average over each consecutive 12 month period (10 TPY); and (b) Utilizing water-based solutions as its main coating solution. [s. NR 424.03(2)(c), Wis. Adm. Code, and s. 285.65(7), Wis. Stat.]

Construction Permit 03-JAJ-055

Construction permit 03-JAJ-055 permitted the construction of a chrome plating process #2 P08 and a copper plating process P21. The emissions from the copper plating process P21 were determined to be insignificant. The copper plating process has been identified as I21, where “I” implies insignificant source. The permit limits established in permits 03-JAJ-055 and 03-JAJ-055-OP are listed below.

Permit Limitations Established in Permits 03-JAJ-055 and 03-JAJ-055-OP

Process/Stack When Permitted	Current Process/Stack Under 617056660-P01	Description	Limitations/Requirements
1. P08, S08, S34, S35, C03, C04	1. P08, S08, S34, S35, C03, C04	Chrome Plating Process #2	<p>1. The permittee shall control chromium emissions discharged to the atmosphere from S08/C03/P08 by not allowing the concentration of total chromium in the exhaust gas stream discharged to the atmosphere to exceed 0.015 milligrams of total chromium per dry standard cubic meter. [s. NR 463.04(3)(a)1., Wis. Adm. Code]</p> <p>2. Particulate Matter Emissions: Emissions may not exceed 0.33 pounds per hour. [ss. NR 404.08(2) and s. NR 415.05(2), Wis. Adm. Code]</p> <p>Note: The 0.33 pounds per hour emission limit is based on modeling and is included in the permit to protect the National Ambient Air Quality Standards (NAAQS). This emission limit is more restrictive than the allowable emission limit of 1.54 pounds per hour calculated from the process weight rate equation in s. NR 415.05(2), Wis. Adm. Code.</p> <p>3. Volatile Organic Compound Emissions: Latest Available Control Techniques and Operating Practices Demonstrating Best Current Technology (LACT). LACT is determined to be the following: (a) A VOC emission limit of 833 pounds per month, based on a 12-month rolling average (5.0 tons per year). [s. NR 424.03(2)(c), Wis. Adm. Code; s. 285.65(3) and s. 285.65(7), Wis. Stats.]</p>

Construction Permit 03-JAJ-105

Construction permit 03-JAJ-105 permitted construction and operation of a film coating line (MRC 5), with a small natural gas fired oven. The emissions from MRC 5 identified as process P06 were determined to be less than the emission values required for a construction permit and therefore MRC 5 was exempt from construction permit requirements.

Construction Permit 03-JAJ-240

Construction permit 03-JAJ-240 permitted the installation of a new ceramic fiber maker (CF6, process P22) and to modify two existing ceramic fiber makers (CF1 and CF2) to use the “worse case material”. Also, a thermal oxidizer will be installed to control emissions from CF1, CF2, CF5, and CF6. The facility requested that the current permit limit of 13,500 pounds of volatile organic compounds (VOCs) per month (lb VOC/month) not be changed. Also, the facility requested the limit on formaldehyde emissions of 1992 lb/yr (166 lb/month) to not be changed. The installation of the control equipment allows the facility to include the new maker, CF6, as well as modify some of the current material use limits for CF1 through CF5.

Permits 03-JAJ-240 and 03-JAJ-240-OP permitted ceramic fiber makers CF1, CF2, CF3, CF4, CF5, and CF6 identified as P15, P16, P17, P18, P19, and P22. The ceramic fiber makers CF1, CF2, CF3, CF4, and CF5 were previously permitted under 01-JAS-609-OP and 656055780-F01 which were superseded by permits 01-JAS-630, 01-JAS-630-OP, and 617055780-F02. The permit limits established in permits 03-JAJ-240 and 03-JAJ-240-OP are listed below.

Permit Limitations Established in Permits 03-JAJ-240 and 03-JAJ-240-OP

Process/Stack When Permitted	Current Process/Stack Under 617056660-P01	Description	Limitations/Requirements
1. P15, S15, S25, S43, S44, S45, C05; 2. P16, S16, S26, S43, S44, S46, C05; 3. P17, S17, S27, S30; 4. P18, S18, S28; 5. P19, S19, S29, S30, S43, S47, C05; 6. P22, S41, S42, S43, S44, S48, C05	1. P15, S15, S25, S43, S44, S45, C05; 2. P16, S16, S26, S43, S44, S46, C05; 3. P17, S17, S27, S30; 4. P18, S18, S28; 5. P19, S19, S29, S30, S43, S47, C05; 6. P22, S41, S42, S43, S44, S48, C05	CF1, CF2, CF3, CF4, CF5, CF6	1. Formaldehyde Emissions: Formaldehyde emissions from the facility may not exceed 166 pounds per month averaged over each 12 consecutive month period determined by the best available control technology (BACT). [ss. NR 445.05(3)(b), Wis. Adm. Code, and 285.65(7), Wis. Stats.] 2. Formaldehyde emissions from processes P15 (CF1), P16 (CF2), P19 (CF5), and P22 (CF6) shall be controlled by at least 41%, on average, between all process lines [P15, P16, P19, and P22] while using the worse case raw material family of fibers. [ss. NR 445.05(3)(b), Wis. Adm. Code, and 285.65(7) Wis. Stats.] 3. Volatile Organic Compound Emissions: Latest Available Control Techniques and operating practices demonstrating best current technology (LACT). (a) The permittee has demonstrated that 85% control is technologically infeasible for the all process lines combined, and so shall use LACT. [s. NR 424.03(2)(c), Wis. Adm. Code] (b) LACT is defined as: 1. The following raw material usage limits to the 3M ceramic fiber maker processes: a. CF1 = 48 lb raw material per hour; b. CF2 = 48 lb raw material per hour;

Permit Limitations Established in Permits 03-JAJ-240 and 03-JAJ-240-OP

Process/Stack When Permitted	Current Process/Stack Under 617056660-P01	Description	Limitations/Requirements
			<p>c. CF3 = 32 lb raw material per hour; d. CF4 = 16 lb raw material per hour; e. CF5 = 48 lb raw material per hour; and f. CF6 = 96 lb raw material per hour.</p> <p>2. VOC emissions shall not exceed 13,500 pounds per month averaged over each 12 consecutive month period. See note.</p> <p>3. Control of VOC emissions from processes P15 (CF1), P16 (CF2), P19 (CF5), and P22 (CF6) during the use of worse case raw materials, with a control efficiency of at least 80%, on average, between all process lines controlled. [s. NR 424.03(2)(c), Wis. Adm. Code, and s. 285.65(7), Wis. Stats.]</p>

Note: The VOC annual emissions limit of 13,500 pounds per month averaged over a 12 consecutive month period (81 tons per year) was the same requirement established under the LACT analysis for construction permit 01-JAS-630. CF1, CF2, CF5, and CF6 will be equipped with pollution control to reduce emissions during fiber firing using the “worse case raw materials”. This represents 60 percent of the process line emissions. The capture efficiency of the equipment for CF1, CF2, and CF5 is 80 percent, and that for CF6 is 100 percent. The control efficiency will be at least 80.4 percent (80 percent, to two significant figures) for VOC emissions, on average, between all process lines controlled. CF3 and CF4 are uncontrolled.

Construction Permit 04-SJZ-145-EXM

Construction permit 04-SJZ-145-EXM permitted construction and operation of a film coating line (MRC 6), with a small natural gas fired oven. The emissions from MRC 6 identified as process P21 were determined to be less than the emission values required for a construction permit and therefore MRC 6 was exempt from construction permit requirements.

SOURCE SPECIFIC EMISSION LIMIT CALCULATIONS

The applicable requirements and emission calculations for the following emission units submitted in the operation permit application are described below. Department of Natural Resources (DNR) has reviewed this information and has deemed it to be accurate. Due to the nature of the information provided, deemed confidential, this preliminary determination for construction permit 04-SJZ-142 and operation permit 617056660-P01 is not able to reproduce the emission calculations.

P01, S01 – 21 million BTU/hr Kewaunee Boiler-Installed 1996

Allowable Emissions: Particulate Matter emissions shall be limited to 0.300 pounds of particulate matter per hour established by modeling in construction permit 04-SJZ-142 and operation permit 617056660-P01. At this emission rate, the National Ambient Air Quality Standards (NAAQS) will be attained and maintained.

The permittee shall not combust #2 fuel oil that contains greater than 0.05 weight percent sulfur, per s. 285.65(7), Wis. Stats. The percent sulfur limit was requested by the facility and established by modeling in permit 96-MMH-607 in order for sulfur dioxide emissions to meet the ambient air quality standards.

Boiler P01 was last constructed or modified after April 1, 1972, and therefore is subject to the visible emissions limitation of 20% opacity under s. NR 431.05, Wis. Adm. Code. The facility will demonstrate compliance with the visible emissions limitation of 20% opacity by meeting the compliance demonstration requirements for particulate matter and sulfur dioxide. The recordkeeping requirements for particulate matter emissions also serve as recordkeeping requirements for visible emissions for boiler P01.

Maximum Theoretical and Potential to Emit Emissions: All maximum theoretical and potential to emit emissions were supplied by the facility. See Stack Emissions section below for all values.

P02, S02 – 13.3 Million BTU/hr boiler-Installed 1974

Allowable Emissions: Particulate Matter emissions shall be limited to 0.190 pounds of particulate matter per hour established by modeling in construction permit 04-SJZ-142 and operation permit 617056660-P01. At this emission rate, the National Ambient Air Quality Standards (NAAQS) will be attained and maintained.

The permittee shall not combust #2 fuel oil that contains greater than 0.05 weight percent sulfur, per s. 285.65(7), Wis. Stats. Because the #2 fuel oil used in boiler P01 is limited to 0.05 weight percent sulfur, the facility decided to limit all #2 fuel oil burned at the facility to a sulfur content of no more than 0.05 weight percent sulfur.

Boiler P02 was last constructed or modified after April 1, 1972, and therefore is subject to the visible emissions limitation of 20% opacity under s. NR 431.05, Wis. Adm. Code. The facility will demonstrate compliance with the visible emissions limitation of 20% opacity by meeting the compliance demonstration requirements for particulate matter and sulfur dioxide. The recordkeeping requirements for particulate matter emissions also serve as recordkeeping requirements for visible emissions for boiler P02.

Maximum Theoretical and Potential to Emit Emissions: All maximum theoretical and potential to emit emissions were supplied by the facility. See Stack Emissions section below for all values.

P03, S03 – 16.7 Million BTU/hr Boiler-Installed 1980

Allowable Emissions: Particulate Matter emissions shall be limited to 0.239 pounds of particulate matter per hour established by modeling in construction permit 04-SJZ-142 and operation permit 617056660-P01. At this emission rate, the National Ambient Air Quality Standards (NAAQS) will be attained and maintained.

The permittee shall not combust #2 fuel oil that contains greater than 0.05 weight percent sulfur, per s. 285.65(7), Wis. Stats. Because the #2 fuel oil used in boiler P01 is limited to 0.05 weight percent sulfur, the facility decided to limit all #2 fuel oil burned at the facility to a sulfur content of no more than 0.05 weight percent sulfur.

Boiler P03 was last constructed or modified after April 1, 1972, and therefore is subject to the visible emissions limitation of 20% opacity under s. NR 431.05, Wis. Adm. Code. The facility will demonstrate compliance with the visible emissions limitation of 20% opacity by meeting the compliance demonstration requirements for particulate matter and sulfur dioxide. The recordkeeping requirements for particulate matter emissions also serve as recordkeeping requirements for visible emissions for boiler

P03.

Maximum Theoretical and Potential to Emit Emissions: All maximum theoretical and potential to emit emissions were supplied by the facility. See Stack Emissions section below for all values.

P04, S04 – 10.5 Million BTU/hr Boiler-Installed 1989

Allowable Emissions: The nitrogen oxide limit of 1.5 pounds per hour was established in construction permit 89-TEW-616 because of unknown reasons. Because it is unknown why a nitrogen oxide was established, the nitrogen oxide limit of 1.5 pounds per hour has not been included in construction permit 04-SJZ-142 and operation permit 617056660-P01.

Particulate Matter emissions shall be limited to 0.150 pounds of particulate matter per hour established by modeling in construction permit 04-SJZ-142 and operation permit 617056660-P01. At this emission rate, the National Ambient Air Quality Standards (NAAQS) will be attained and maintained.

The sulfur dioxide limit of 5.4 pounds per hour was established in construction permit 89-TEW-616. Because the 0.05 weight percent sulfur in #2 fuel oil limit is more restrictive than 5.4 pounds per hour of sulfur dioxide, the 5.4 pounds per hour of sulfur dioxide has not been included in construction permit 04-SJZ-142 and operation permit 617056660-P01.

Due to lack of information, the nitrogen oxide limit of 1.5 pounds per hour has not been included in construction permit 04-SJZ-142 and operation permit 617056660-P01.

The permittee shall not combust #2 fuel oil that contains greater than 0.05 weight percent sulfur, per s. 285.65(7), Wis. Stats. Because the #2 fuel oil used in boiler P01 is limited to 0.05 weight percent sulfur, the facility decided to limit all #2 fuel oil burned at the facility to a sulfur content of no more than 0.05 weight percent sulfur.

Boiler P04 was last constructed or modified after April 1, 1972, and therefore is subject to the visible emissions limitation of 20% opacity under s. NR 431.05, Wis. Adm. Code. The facility will demonstrate compliance with the visible emissions limitation of 20% opacity by meeting the compliance demonstration requirements for particulate matter and sulfur dioxide. The recordkeeping requirements for particulate matter emissions also serve as recordkeeping requirements for visible emissions for boiler P04.

Maximum Theoretical and Potential to Emit Emissions: All maximum theoretical and potential to emit emissions were supplied by the facility. See Stack Emissions section below for all values.

P05, S05 – 10.5 Million BTU/hr Boiler-Installed 1989

Allowable Emissions: The nitrogen oxide limit of 1.5 pounds per hour was established in construction permit 89-TEW-616 because of unknown reasons. Because it is unknown why a nitrogen oxide was established, the nitrogen oxide limit of 1.5 pounds per hour has not been included in construction permit 04-SJZ-142 and operation permit 617056660-P01.

Particulate Matter emissions shall be limited to 0.150 pounds of particulate matter per hour established by modeling in construction permit 04-SJZ-142 and operation permit 617056660-P01. At this emission rate, the National Ambient Air Quality Standards (NAAQS) will be attained and maintained.

The sulfur dioxide limit of 5.4 pounds per hour was established in construction permit 89-TEW-616. Because the 0.05 weight percent sulfur in #2 fuel oil limit is more restrictive than 5.4 pounds per hour of sulfur dioxide, the 5.4 pounds per hour of sulfur dioxide has not been included in construction permit 04-SJZ-142 and operation permit 617056660-P01.

The permittee shall not combust #2 fuel oil that contains greater than 0.05 weight percent sulfur, per s. 285.65(7), Wis. Stats. Because the #2 fuel oil used in boiler P01 is limited to 0.05 weight percent sulfur, the facility decided to limit all #2 fuel oil burned at the facility to a sulfur content of no more than 0.05 weight percent sulfur.

Boiler P05 was last constructed or modified after April 1, 1972, and therefore is subject to the visible emissions limitation of 20% opacity under s. NR 431.05, Wis. Adm. Code. The facility will demonstrate compliance with the visible emissions limitation of 20% opacity by meeting the compliance demonstration requirements for particulate matter and sulfur dioxide. The recordkeeping requirements for particulate matter emissions also serve as recordkeeping requirements for visible emissions for boiler P05.

Maximum Theoretical and Potential to Emit Emissions: All maximum theoretical and potential to emit emissions were supplied by the facility. See Stack Emissions section below for all values.

P06, S06, S36: MRC 5-Installed 2003

The film coating line (MRC 5) process P06 was determined to be an insignificant source and exempt under ch. NR 406, Wis. Adm. Code under construction permit 03-JAJ-105. The film coating line (MRC 5) process P06 consists of a coater (stack S06) and an oven (stack S36).

Allowable Emissions: Although this project has been determined to be exempt under ch. NR 406, Wis. Adm. Code, it is still subject to all applicable requirements in NR 400 – 499, Wis. Adm. Code and any other applicable federal, state or local regulations.

Maximum Theoretical and Potential to Emit Emissions: All maximum theoretical and potential to emit emissions were supplied by the facility. See Stack Emissions section below for all values.

P07, S07, S22, S24, S49: Tape Coating-Installed 1983

Tape Process Technology Center (TPTC) produces a variety of coated adhesive tapes for the electrical products markets. Utilizes coating stations (pre-coat and post-coat), adhesive material handling/compounding, an electric curing oven, and a gas-fired curing oven. The adhesive material handling/compounding portion is listed as an insignificant activity. The tape coating process P07 consists of a pre-coating station (S07), pre-coat oven (stack S22), a solventless hot-melt coating station (no exhaust), a post coat station (S24), and a post-coating oven (stack S49). The majority of the emissions from the process are emitted at the oven stacks, S22 and S49.

Allowable Emissions: The total VOC emissions from the entire facility shall be limited to 249 tons per year, averaged over 12 months, requested in the operation permit application and in the Environmental Cooperative Agreement between WI DNR and 3M on October 1, 2002, pursuant to s. 299.80, Wis. Stats. Coatings used in process P07 shall not contain more than 2.9 pounds per gallon, less water, as delivered of organic compounds in accordance with s. NR 422.07(2), Wis. Adm. Code. ■

Construction permit MIA-10-KJC-83-17-023 established the VOC limit of 5,000 pounds per day or 249 tons per year of VOC from the tape coating process P07. The total VOC emissions from the entire facility shall be limited to 249 tons per year, averaged over 12 months, replaces the VOC limit of 5,000 pounds per day or 249 tons per year of VOC from the tape coating process P07. The replacement of the process limit with the total facility limit does not require a revision to construction permit MIA-10-KJC-83-17-023 because the total facility VOC limit of 249 tons per year is more restrictive than the 5,000 pounds per day or 249 tons per year limit for the tape coating process P07. The total facility VOC limit of 249 tons per year is more restrictive than the 5,000 pounds per day or 249 tons per year limit for the tape coating process P07 because it is a facility wide limit applied to all processes at the facility.

Maximum Theoretical and Potential to Emit Emissions: All maximum theoretical and potential to emit emissions were supplied by the facility. See Stack Emissions section below for all values.

P08, C03, C04, S08, S34, S35: Chrome Plating Process #2-Installed 2003

The Chrome Plating Process #2 (Process P08) is a chrome electroplating process which coats rolls in a chromic acid bath (S08), cleans the rolls (S34), and applies a protective coating in the Cladding Booth (S35). The process emits particulate matter, volatile organic compounds, and various hazardous air pollutants. Emissions from the chromic acid bath are controlled by the chrome scrubber and composite mesh pad system (C03) and emissions from the Cladding Booth are controlled by the fabric filter (C04).

Allowable Emissions: The chrome plating process #2 is subject to the MACT standard under 40 CFR Part 63 Subpart N, for hard chromium electroplaters. The chrome plating process #2 chromium emissions shall be limited to 0.015 milligrams of total chromium per dry standard cubic meter under s. NR 463.04(3)(a)1., Wis. Adm. Code.

Chromium emissions from process P08 shall be limited to 0.015 milligrams of total chromium per dry standard cubic meter (mg/dscm) as total chromium at the exhaust of the mesh filter/HEPA filter [C03] for the chromium plating bath in accordance with 40 Code of Federal Regulations (CFR) section 63.342(c)(1)(i), which is the MACT Standard for Chromium Electroplaters.

The chromium emissions limit of 0.015 milligrams of total chromium per dry standard cubic meter (DSCM) equates to 8.16E-05 pounds per hour. Please see the calculations below.

At a stack exhaust rate of 1,600 actual cubic feet per minute (ACFM), a stack pressure of 1 atmosphere (atm), and a stack exhaust gas temperature of 80 degrees Fahrenheit, the stack exhaust rate in standard cubic feet per minute (SCFM) is the following:

$$\text{Flow rate (SCFM)} = \text{Flow rate (ACFM)} * (T_{\text{STP}} + 460 / T_{\text{Actual}} + 460) * (P_{\text{Actual}} / P_{\text{STP}})$$

$$\text{Flow rate (SCFM)} = 1,600 \text{ ACFM} * [(68^\circ\text{F} + 460)/(80^\circ\text{F} + 460) * (1 \text{ atm}/1 \text{ atm})]$$

$$\text{Flow rate (SCFM)} = 1,564 \text{ SCFM}$$

By considering exhaust gas moisture content of 2 percent by volume, a flow rate in standard cubic feet per minute (SCFM) can be converted to a flow rate in dry standard cubic feet per minute (DSCFM) by the following:

$$\text{Flow Rate (DSCFM)} = \text{Flow Rate (SCFM)} * [100\% - \text{Stack Gas Moisture \%}]$$

$$\text{Flow Rate (DSCFM)} = 1,564 \text{ SCFM} * [(100\% - 2\%)/100]$$

Flow Rate (DSCFM) = 1,533 DSCFM

Chromium allowable emission rate in pounds per hour is then calculated as follows:

Allowable Emission (lb/hr) = (0.015 mg/DSCM) * (1 lb/453 g) * (1 g/1,000 mg) * (1 m³/35.3 ft³) * (1,533 DSCFM) * (60 min/hr)

Allowable Emission (lb/hr) = 8.61E-05 lb/hr

Particulate matter emissions shall not exceed 0.33 pounds per hour from the chrome plating process #2, per ss. NR 404.08(2) and s. NR 415.05(2), Wis. Adm. Code. The 0.33 pounds per hour particulate matter emission limit was established by modeling in construction permit 03-JAJ-055 to protect the National Ambient Air Quality Standards (NAAQS). This emission limit is more restrictive than the allowable emission limit of 1.54 pounds per hour calculated from the process weight rate equation in s. NR 415.05(2), Wis. Adm. Code.

Chrome Plating Process #2 (Process P08) was last constructed or modified after April 1, 1972, and therefore is subject to the visible emissions limitation of 20% opacity under s. NR 431.05, Wis. Adm. Code. The facility will demonstrate compliance with the visible emissions limitation of 20% opacity by meeting the compliance demonstration requirements for chromium and particulate matter. The recordkeeping requirements for particulate matter emissions also serve as recordkeeping requirements for visible emissions for process P08.

Since the process was installed or modified on or after August 1, 1979, and will have VOC emissions greater than 15 pounds per day, the chrome plating process #2 must also meet the control requirements under Chapter NR 424, Wis. Adm. Code, for organic compound emissions from process lines. VOC emissions from process P08 shall be controlled by at least 85%, unless the facility can show control of the VOC emissions is technologically infeasible, per s. NR 424.03(2)(c), Wis. Adm. Code. 3M Menomonie – OSD-Plating has provided a LACT analysis showing 85% control is infeasible. The LACT determination for chrome plating #2 process P08 is the following workpractice: cleaning shall be performed using only isopropyl alcohol (IPA) which is applied to parts using squeegee bottles which are no larger than 1-liter in volume, and no more than 475 1-liter squeegee bottles used per month, based on a 12-month rolling average, or an equivalent combination of bottles of different volume which results in VOC emissions of no more than 833 pounds per month, based on a 12-month rolling average (5.0 tons per year).

The total VOC emissions from the entire facility shall be limited to 249 tons per year, averaged over 12 months, requested in the operation permit application and in the Environmental Cooperative Agreement between WI DNR and 3M on October 1, 2002, pursuant to s. 299.80, Wis. Stats.

Maximum Theoretical and Potential to Emit Emissions:

The process uses a chrome scrubber and composite mesh pad system (C03) to control emissions from the chrome plating tank. This control system is actually part of the process because captured emissions are returned to the process. Therefore, the MTE is equivalent to the calculated potential emissions (PTE), for this portion of the process. Also, the particulate matter emissions from the cladding booth (S35), which uses a filter control device (C04), were corrected for transfer efficiency of the applicator and control efficiency for PTE calculations.

All maximum theoretical and potential to emit emissions were supplied by the facility. See Stack Emissions section below for all values.

P09, S09, C01: Automated Spray Coating Line-Installed 1996

Particulate overspray is expected from the coating lines. Overspray particulate will be controlled by Research Products Corporation, Paint Arrestor 3000 paper filters with an assumed control efficiency of 97 percent.

Allowable Emissions: Particulate matter allowable emissions rate was determined in construction permit 96-MMH-616 and is included here. Particulate matter allowable emissions are subject to the more restrictive limitation contained in ss. NR 415.05(1)(o), Wis. Adm. Code and NR 415.05(2), Wis. Adm. Code. Under s. NR 415.05(1)(o), Wis. Adm. Code, the PM limitation is 0.40 pounds of particulate matter per 1,000 pounds of exhaust gas. Under s. NR 415.05(2), Wis. Adm. Code, the PM limitation is calculated by the use of equation $E = 3.59P^{0.62}$ for process weight rates up to 60,000 pounds per hour, where E is the allowable emissions in pounds per hour and P is the process weight rate in tons per hour. The most restrictive limitation for processes P09 is contained in s. NR 415.05(2), Wis. Adm. Code. It was calculated as 0.32 pounds of particulate matter per hour per paint booth by the facility. Due to confidentiality, this calculation was not able to be reproduced here.

Automated Spray Coating Line P09 was last constructed or modified after April 1, 1972, and therefore is subject to the visible emissions limitation of 20% opacity under s. NR 431.05, Wis. Adm. Code. The facility will demonstrate compliance with the visible emissions limitation of 20% opacity by meeting the compliance demonstration requirements for particulate matter. The recordkeeping requirements for particulate matter emissions also serve as recordkeeping requirements for visible emissions for process P09.

VOC emissions are subject to s. NR 424.03(2)(c), Wis. Adm. Code, which requires process lines to control emissions by at least 85% or where 85% has been demonstrated to be technologically infeasible for a specific process line, control organic compound emissions by use of the latest available control techniques (LACT) and operating practices demonstrating best current technology, as approved by the department. LACT has been determined to be applying coatings using high volume low pressure (HVLP) systems.

The facility has requested replacing the coating usage limits for the automated spray coating line process P09 established in construction permit 95-MMH-616-R1 with an equivalent total VOC limit of 2,337 pounds per month of VOC averaged over 12 months process limit. The VOC limit of 2,337 pound per month averaged over 12 months is equivalent to the usage limits established in construction permit 95-MMH-616-R1. See the calculations below.

From 95-MMH-616-R1 permit:

Restricted Amount of Scotchclad coating =	187 lb/month (from 95-MMH-616-R1 permit)
Restricted Amount of 401 Lacquer Thinner =	71.5 gal/month (from 95-MMH-616-R1 permit)
Restricted Amount of Isopropyl Alcohol =	45 gal/month (from 95-MMH-616-R1 permit)
Restricted Amount of Methyl Ethyl Ketone =	1 gal/month (from 95-MMH-616-R1 permit)
Restricted Amount of Naptha =	15 gal/month (from 95-MMH-616-R1 permit)

Maximum Coating Rate = 0.26 gal/hr (from Title V application)

All percent by weight of VOC's and density of coatings are from the Title V application with the exception of 401 Lacquer Thinner. The percent by weight and density of the 401 Lacquer Thinner are from the preliminary determination for operation permit 95-MMH-616-R1. No percent by weight VOC and density information were received from the facility for methyl ethyl ketone (MEK) except an emission rate of 0.2236 ton/yr of VOC.

VOC Emissions from Scotchclad Coating:

$$\text{MTE (lb/hr)} = (91/100 \text{ lb/lb}) * (8.34 \text{ lb/gal}) * (0.26 \text{ gal/hr})$$

$$\text{MTE (lb/hr)} = 1.97 \text{ lb/hr}$$

$$\text{MTE (ton/yr)} = (1.97 \text{ lb/hr}) * (24 \text{ hr/day}) * (365 \text{ day/yr}) / (2,000 \text{ lb/ton})$$

$$\text{MTE (ton/yr)} = 8.64 \text{ ton/yr}$$

$$\text{PTE (lb/hr)} = (91/100 \text{ lb/lb}) * (8.34 \text{ lb/gal}) * (187 \text{ lb/month}) * (12 \text{ months/yr}) * (1 \text{ yr}/365 \text{ day}) * (1 \text{ day}/24 \text{ hr})$$

$$\text{PTE (lb/hr)} = 1.94 \text{ lb/hr}$$

$$\text{PTE (ton/yr)} = (1.94 \text{ lb/hr}) * (24 \text{ hr/day}) * (365 \text{ day/yr}) / (2,000 \text{ lb/ton})$$

$$\text{PTE (ton/yr)} = 8.52 \text{ ton/yr}$$

The maximum theoretical emissions and potential to emit emissions from the 401 lacquer thinner, isopropyl alcohol, and naptha coatings are calculated using this method. See the table below for all values.

Criteria Pollutant Emissions From Stack S09

Pollutant	Percent by Weight	Density	Actual Emissions		Maximum Theoretical Emissions		Potential To Emit	
	lb/lb	lb/gal	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
VOC (Scotchclad)	91	8.34	0	0	1.97	8.64	1.94	8.52
VOC (401 Lacquer Thinner)	100	7.14	0	0	1.86	8.13	6.99E-01	3.06
VOC (Isopropyl Alcohol)	78.63	8.34	0	0	1.71	7.47	4.04E-01	1.77
VOC (Methyl Ethyl Ketone)	NA	NA	NA	NA	NA	NA	5.11E-02	2.24E-01
VOC (Naptha)	60	8.34	0	0	1.30	5.70	1.03E-01	4.50E-01
Total								14.0

The total VOC emissions from the 401 lacquer thinner, isopropyl alcohol, methyl ethyl ketone, and naptha coatings is 14.0 tons per year or 2,337 pounds per month, which is equivalent to the individual coating usage limits established in construction permit 95-MMH-616-R1.

The total VOC emissions from the entire facility shall be limited to 249 tons per year, averaged over 12 months, requested in the operation permit application and in the Environmental Cooperative Agreement between WI DNR and 3M on October 1, 2002, pursuant to s. 299.80, Wis. Stats.

Maximum Theoretical and Potential to Emit Emissions:

All maximum theoretical and potential to emit emissions were supplied by the facility. See Stack Emissions section below for all values.

Process P10, S10, S20: MRC Resin Coating Line 1-Last Modified 2000

Process P11, S11, S21: MRC Resin Coating Line 2-Last Modified 2000

Process P12, S12: MRC Resin Coating Line 3-Last Modified 2000

Process P13, S13, S23: MRC Resin Coating Line 4-Installed 2000

Optical Systems Division (OSD) this process produces an optical film used as a brightness enhancing film on lap top computer screens and other application. There is a supporting tool making process (chrome plating) that produces tooling rolls for the web lines. The department also has a converting department for some of the web products produced-converting (plant-wide) is listed as an insignificant activity. Film coating line MRC 1 process P10 consists of a coater (stack S10) and an oven (stack S20). Film coating line MRC 2 process P11 consists of a coater (stack S11) and an oven (stack S21). Film coating line MRC 3 process P12 consists of a coater and an oven (stack S12). Film coating line MRC 4 process P13 consists of a coater (stack S13) and an oven (stack S23).

Allowable Emissions: The application of control technologies to achieve 85% control of the volatile organic compound emissions from this process has been determined to be infeasible under the standards applied under ch. NR 424, Wis. Adm. Code. Thus, Latest Available Control Technology and operating practices (LACT) standard of s. NR 424.03(2)(c), Wis. Adm. Code, shall apply. LACT is determined to be the use of UV curable resins.

The total monthly VOC usage from processes P10, P11, P12, P13, and P06 shall not exceed an average of 6,650 pounds per month averaged over any 12 consecutive month period. This condition will cap the project potential to emit to less than 40 tons per year as requested by the company. This will help insure that the facility's potential to emit will remain below the significant emissions threshold under PSD. The facility has decided to voluntarily limit film coating line MRC 5 process P06 and MRC 6 process P21 to the same limitations under the film coating lines MRC 1, MRC 2, MRC 3, and MRC 4.

The total VOC emissions from the entire facility shall be limited to 249 tons per year, averaged over 12 months, requested in the operation permit application and in the Environmental Cooperative Agreement between WI DNR and 3M on October 1, 2002, pursuant to s. 299.80, Wis. Stats.

Maximum Theoretical and Potential to Emit Emissions:

All maximum theoretical and potential to emit emissions were supplied by the facility. See Stack Emissions section below for all values.

P14, S14, C02: Chrome Plating Process-Installed 1996

The Chrome Plating Process (Process P14) is a chrome electroplating process which coats rolls in a chromic acid bath (S14), cleans the rolls (S14) and applies a protective coating in the Cladding Booth (no stack, vented indoors). The process emits particulate matter, volatile organic compounds, and various hazardous air pollutants. Emissions from the Cladding Booth are vented indoors. Emissions from the chromic acid bath are controlled by the composite mesh pad system (C02).

Allowable Emissions: Chromium emissions from process P14 shall be limited to 0.015 milligrams of total chromium per dry standard cubic meter (mg/dscm) as total chromium at the exhaust of the mesh filter/HEPA filter [C02] for the chromium plating bath in accordance with 40 Code of Federal Regulations (CFR) section 63.342(c)(1)(i), which is the MACT Standard for Chromium Electroplaters.

The chromium emissions limit of 0.015 milligrams of total chromium per dry standard cubic meter (DSCM) equates to 5.19E-05 pounds per hour. Please see the calculations below.

At a stack exhaust rate of 950 actual cubic feet per minute (ACFM), a stack pressure of 1 atmosphere

(atm), and a stack exhaust gas temperature of 72 degrees Fahrenheit, the stack exhaust rate in standard cubic feet per minute (SCFM) is the following:

$$\text{Flow rate (SCFM)} = \text{Flow rate (ACFM)} * (T_{\text{STP}} + 460 / T_{\text{Actual}} + 460) * (P_{\text{Actual}} / P_{\text{STP}})$$

$$\text{Flow rate (SCFM)} = 950 \text{ ACFM} * [(68^\circ\text{F} + 460)/(72^\circ\text{F} + 460) * (1 \text{ atm}/1 \text{ atm})]$$

$$\text{Flow rate (SCFM)} = 943 \text{ SCFM}$$

By considering exhaust gas moisture content of 2 percent by volume, a flow rate in standard cubic feet per minute (SCFM) can be converted to a flow rate in dry standard cubic feet per minute (DSCFM) by the following:

$$\text{Flow Rate (DSCFM)} = \text{Flow Rate (SCFM)} * [100\% - \text{Stack Gas Moisture \%}]$$

$$\text{Flow Rate (DSCFM)} = 943 \text{ SCFM} * [(100\% - 2\%)/100]$$

$$\text{Flow Rate (DSCFM)} = 924 \text{ DSCFM}$$

Chromium allowable emission rate in pounds per hour is then calculated as follows:

$$\text{Allowable Emission (lb/hr)} = (0.015 \text{ mg/DSCM}) * (1 \text{ lb}/453 \text{ g}) * (1 \text{ g}/1,000 \text{ mg}) * (1 \text{ m}^3/35.3 \text{ ft}^3) * (924 \text{ DSCFM}) * (60 \text{ min/hr})$$

$$\text{Allowable Emission (lb/hr)} = 5.19\text{E-}05 \text{ lb/hr}$$

Particulate matter emissions shall be limited to 0.58 pounds per hour of particulate established in construction permit 97-MMH-605 in order to meet the PSD increment and National Ambient Air Quality Standards (NAAQS) for particulate matter.

Chrome Plating Process (Process P14) was last constructed or modified after April 1, 1972, and therefore is subject to the visible emissions limitation of 20% opacity under s. NR 431.05, Wis. Adm. Code. The facility will demonstrate compliance with the visible emissions limitation of 20% opacity by meeting the compliance demonstration requirements for chromium and particulate matter. The recordkeeping requirements for particulate matter emissions also serve as recordkeeping requirements for visible emissions for process P14.

It has been determined in construction permit 97-MMH-605 that daily VOC emissions from chrome plating process P14 do not exceed 15 pounds and that it is exempt from the requirements in ch. NR 424, Wis. Adm. Code.

The total VOC emissions from the entire facility shall be limited to 249 tons per year, averaged over 12 months, requested in the operation permit application and in the Environmental Cooperative Agreement between WI DNR and 3M on October 1, 2002, pursuant to s. 299.80, Wis. Stats.

Maximum Theoretical and Potential to Emit Emissions:

All maximum theoretical and potential to emit emissions were supplied by the facility. See Stack Emissions section below for all values.

P15, S15, S25, S43, S44, S45, C05: CF1 Ceramic Fiber Making Process-Last Modified 2004

P16, S16, S26, S43, S44, S46, C05: CF2 Ceramic Fiber Making Process-Last Modified 2004

P17, S17, S27, S30: CF3 Ceramic Fiber Making Process-Last Modified 2004

P18, S18, S28: CF4 Ceramic Fiber Making Process-Last Modified 2004

P19, S19, S29, S30, S43, S47, C05: CF5 Ceramic Fiber Making Process-Last Modified 2004
P22, S40, S41, S42, S43, S48, C05: CF6 Ceramic Fiber Firing-Last Modified 2004

Allowable Emissions: The ceramic fiber lines are process lines that emit organic compounds and are therefore subject to section NR 424.03 of the Wis. Adm. Code. A LACT review was conducted under permit 01-JAS-630 by the facility and the installation of control equipment was found to be infeasible. LACT was therefore determined to be limits on the amount of production for each raw material on the makers. These production limits cap the potential emissions of VOC to 13,500 pounds per month averaged over a 12 consecutive month period or 81 tons per year. The facility has resubmitted a new LACT analysis under permit 03-JAJ-240. The LACT determined that 85 percent control, as required under s. NR 424.03, Wis. Adm. Code, is still infeasible, but 80.4 percent control efficiency, on average, is feasible. VOC emissions shall be controlled on only process lines P15 (CF1), P16 (CF2), P19 (CF5), and P22 (CF6), and only during the use of the “worse case raw materials”. Therefore, LACT under construction permit 04-SJZ-142 and operation permit 617056660-P01, determined in construction permit 03-JAJ-240, shall be the following:

1. the use of control equipment to control VOC emissions from processes P15, P16, P19, and P22 during the use of “worse case raw materials”, with a control efficiency of at least 80.4 percent, on average, between all process lines controlled,
2. limit the amount of production for each raw material on the makers to the following:
 - CF1 = 48 lb raw material per hour;
 - CF2 = 48 lb raw material per hour;
 - CF3 = 32 lb raw material per hour;
 - CF4 = 16 lb raw material per hour;
 - CF5 = 48 lb raw material per hour; and
 - CF6 = 96 lb raw material per hour, and
3. maintain annual emissions of VOCs for process lines P15 (CF1), P16 (CF2), P19 (CF5), and P22 (CF6) to no more than 13,500 pounds per month averaged over a 12 consecutive month period.

The VOC annual emissions limit of 13,500 pounds per month averaged over a 12 consecutive month period (81 tons per year) was the same requirement established under the LACT analysis for construction permit 01-JAS-630. CF1, CF2, CF5, and CF6 will be equipped with pollution control to reduce emissions during fiber firing using the “worse case raw materials”. This represents 60 percent of the process line emissions. The capture efficiency of the equipment for CF1, CF2, and CF5 is 80 percent, and that for CF6 is 100 percent. The control efficiency will be at least 80.4 percent (80 percent, to two significant figures) for VOC emissions, on average, between all process lines controlled. CF3 and CF4 are uncontrolled.

The total VOC emissions from the entire facility shall be limited to 249 tons per year, averaged over 12 months, requested in the operation permit application and in the Environmental Cooperative Agreement between WI DNR and 3M on October 1, 2002, pursuant to s. 299.80, Wis. Stats.

Processes P15, P16, P17, P18, P19, and P22 are not subject to NSPS in s. NR 440.67, Wis. Adm. Code for Synthetic fiber production facilities because even though these processes meet the definition of sources regulated by NR 440.67, the maximum production of these processes is less than 500 Megagrams

and therefore s. NR 440.67 requirements do not apply.

Formaldehyde is emitted above the Table 3B NR 445 thresholds. Table 3B pollutants shall be controlled to a level which is the best available control technology (BACT). The facility first developed a BACT analysis for formaldehyde, under permit 01-JAS-630. BACT was established as an emissions limit of no more than 166 lb/month of formaldehyde, based on a 12-month rolling average, without control, from all CF lines. The facility submitted a revised BACT analysis to include the new CF6 line, as well as changes due to the modifications of CF1 and CF2 and the installation of new control equipment for construction permit 03-JAJ-640. The amendment to the BACT did not increase the allowable emissions of formaldehyde however. The facility requested the same limit under permit 01-JAS-630 (166 lb/month, 12-month rolling average of formaldehyde), and incorporated the control device (C05) on the units utilizing the “worse case raw materials” (CF1, CF2, CF5, and CF6). The facility will maintain sufficient records showing formaldehyde emissions are below the BACT established limit of 166 lb/month. The facility will be required to operate the control equipment to remove at least 40.8% (41%, rounded to two significant figures), on average, of formaldehyde emissions from each of the processes P15 (CF1), P16 (CF2), P19 (CF5), and P22 (CF6), when utilizing “worse case raw materials” during operation.

Maximum Theoretical and Potential to Emit Emissions:

All maximum theoretical and potential to emit emissions were supplied by the facility. See Stack Emissions section below for all values.

P20, S31, S32, S33: Gamma Line-Installed 2003

Allowable Emissions: The production of sheet goods utilizes a coating that will emit VOCs. Potential emissions exceed 15 lb/day. Since the process is to be installed or modified on or after August 1, 1979, and will have VOC emissions greater than 15 pounds per day, the Gamma line must meet the control requirements under Chapter NR 424, Wis. Adm. Code, for organic compound emissions from process lines. VOC emissions from process P20 shall be controlled by at least 85%, unless the facility can show control of the VOC emissions is technologically infeasible. 3M Menomonie – Proteus Group has provided a LACT analysis showing 85% control is infeasible. LACT has been determined to be: limiting VOC emissions from P20 to no more than 1,666 pounds per month, determined as an average over each consecutive 12 month period (10 TPY) and utilizing water-based solutions as its main coating solution. The 1,666 pounds per month VOC limit is based on a process or equipment based limit meaning it is impossible for the equipment used in the gamma line process to produce more than 1,666 pounds per month of VOC emissions.

The total VOC emissions from the entire facility shall be limited to 249 tons per year, averaged over 12 months, requested in the operation permit application and in the Environmental Cooperative Agreement between WI DNR and 3M on October 1, 2002, pursuant to s. 299.80, Wis. Stats.

Maximum Theoretical and Potential to Emit Emissions:

All maximum theoretical and potential to emit emissions were supplied by the facility. See Stack Emissions section below for all values.

P21, S50, S51, S52, S53: MRC 6-Installed 2004

The film coating line (MRC 6) process P21 was determined to be an insignificant source and exempt under ch. NR 406, Wis. Adm. Code under construction permit 04-SJZ-145-EXM. Film coating line

(MRC 6) process P21 MRC 6 consists of a coater (S50), oven process (S51), oven zone 1 combustion (S52), and oven zone 2 combustion (S53).

Allowable Emissions: Although this project has been determined to be exempt under ch. NR 406, Wis. Adm. Code, it is still subject to all applicable requirements in NR 400 – 499, Wis. Adm. Code and any other applicable federal, state or local regulations.

Maximum Theoretical and Potential to Emit Emissions: All maximum theoretical and potential to emit emissions were supplied by the facility. See Stack Emissions section below for all values.

I21, S37, S38, S39: Copper Plating-Installed 2004

The Copper Plating process (Process I21) is a copper electroplating process which machines off existing plating, coats rolls in a copper plating bath, and cleans the rolls. The process emits particulate matter and various hazardous air pollutants. Emissions from the lathe process are emitted back into the room and are considered fugitive. However, because these emissions are particulate, it is not expected that the emissions would reach the ambient air. Therefore, all emissions from the lathe process (particulate matter from copper and chromium dusts) will not be considered in this review. MTE of phosphoric acid from the cleaning process is 0.0145 lb/hr (28.9 lb/yr), and is less than the inclusion level under s. NR 407.05(4)(c)9., Wis. Adm. Code, Table 2. Also, MTE of sulfuric acid from the plating process is 0.007 lb/hr (14.07 lb/yr), and is less than the inclusion level under s. NR 407.05(4)(c)9., Wis. Adm. Code, Table 2. Therefore, this source of emissions is insignificant and will not be included in operation permit 617056660-P01. The emissions from the copper plating process I21 will be included in the total facility emission.

Maximum Theoretical and Potential to Emit Emissions:

All maximum theoretical and potential to emit emissions were supplied by the facility. See Stack Emissions section below for all values.

Hazardous Air Contaminant Review - ch. NR 445, Wis. Adm. Code Requirements:

State hazardous air pollutant emissions that result from the combustion of natural gas and #2 fuel oil in boilers P01, P02, P03, P04, and P05 are exempt from the requirements of s. NR 445.05, Wis. Adm. Code because natural gas and #2 fuel oil are group 1 virgin fossil fuels, pursuant to ss. NR 445.05(1)(c)1., (3)(c)1., (4)(c)1., and (4r)(b)1., Wis. Adm. Code.

Formaldehyde emissions from the film coating lines P15, P16, P17, P18, P19, and P22 is emitted above the Table 3B NR 445 thresholds. Table 3B pollutants shall be controlled to a level which is the best available control technology (BACT). The facility currently operates under a BACT for formaldehyde, established under permit 01-JAS-630. BACT was established as an emissions limit of no more than 166 pounds per month, based on a 12-month rolling average, without control, from all CF lines. The facility has submitted a revised BACT analysis, under construction permit 03-JAJ-240, to include the new CF6 line, as well as changes due to the modifications of CF1 and CF2 and the installation of new control equipment. The amendment to the BACT does not increase the allowable emissions of formaldehyde however. The facility requests the same limit as before (166 pounds per month, 12-month rolling average), and shall incorporate the control device (C05) on the units utilizing the “worse case raw materials” (CF1, CF2, CF5, and CF6). The facility will maintain sufficient records showing formaldehyde emissions are below the BACT established limit of 166 pounds per month. The facility will be required to operate the control equipment to remove at least 40.8% (41%, to two significant figures), on average, of

formaldehyde emissions from each of the processes P15 (CF1), P16 (CF2), P19 (CF5), and P22 (CF6), when utilizing “worse case raw materials” during operation. The facility has a computer monitored feed system that will report all raw material inputs to the makers on a monthly basis. 3M tests the emissions at each of the stacks annually to derive emission factors that reflect the byproducts of production. 3M will therefore keep monthly records and a running average of monthly emissions for formaldehyde.

All other state hazardous air pollutant emissions from the facility are less than the NR 445 threshold values. See Stack Emissions section below for all values.

Hazardous Air Contaminant Review – Federal Requirements

The potential to emit emissions for individual federal hazardous air pollutants are greater than 10 tons per year and the total of all federal hazardous air pollutants for the entire facility is greater than 25 tons per year so the facility is classified as a major source for federal hazardous air pollutants. See Stack Emissions section below for all values.

The federal hazardous air pollutants from the combustion of natural gas and #2 fuel oil are not exempt from federal classification for classifying a source major or minor for hazardous air pollutants. Federal hazardous air pollutants (HAP) from the combustion of natural gas and #2 fuel oil in boilers P01, P02, P03, P04, and P05 have not been included in the facility total for hazardous air pollutants because HAP emissions from the combustion of natural gas and #2 fuel oil do not significantly contribute to the total federal HAPs for the entire facility. Please refer to the Stack Emissions section below for all values. Federal HAP emissions from the combustion of natural gas and #2 fuel oil do not significantly contribute to the total federal HAP emissions for the facility.

NR 445 WATCH LIST POLLUTANTS

This source has the potential to emit pollutants covered under ch. NR 445 Watch List, per memo “Hazardous Air Pollutants on the Watch List” by Jon Heinrich, dated April 15, 1996: acetaldehyde. The potential emissions of watch list pollutants are above the respective *de minimus* value. See the Watchlist Table below for the anticipated emissions and respective *de minimus* rates.

Compound	CAS Number	Process	Stack	<i>de minimus rates</i> (Stacks > 25 ft.)	Units	Table	Federal Listed HAP	State Listed HAP	Potential To Emit		
									lb/hr	lb/yr	ton/yr
Acetaldehyde	75-07-0	P08	S35	9.38E-01	lb/hr	A & W	Yes	Yes	4.40E-04	3.85	1.93E-03
Acetaldehyde	75-07-0	P08	S35	8214	lb/yr	A & W	Yes	Yes	4.40E-04	3.85	1.93E-03
Acetaldehyde	75-07-0	P15, P16, P17, P18, P19	S43	9.38E-01	lb/hr	A & W	Yes	Yes	3.20	2.80E+04	14.0
Acetaldehyde	75-07-0	P15, P16, P17, P18, P19	S43	8214	lb/yr	A & W	Yes	Yes	3.20	2.80E+04	14.0
Manganese	7439-96-5	P20	S31, S32, S33	0.0052	lb/hr	A & W	Yes	Yes	9.50E-07	8.32E-03	4.16E-06
Manganese	7439-96-5	P20	S31, S32, S33	46.0	lb/yr	A & W	Yes	Yes	9.50E-07	8.32E-03	4.16E-06
Methyl Ethyl Ketone (MEK)	78-93-3	P07	S22	625	lb/hr	W	Yes	No	56.8	4.98E+05	249
Methyl Ethyl Ketone (MEK)	78-93-3	P07	S22	5.48E+06	lb/yr	W	Yes	No	56.8	4.98E+05	249

Compound	CAS Number	Process	Stack	<i>de minimus rates</i> (Stacks > 25 ft.)	Units	Table	Federal Listed HAP	State Listed HAP	Potential To Emit		
									lb/hr	lb/yr	ton/yr
Methyl Ethyl Ketone (MEK)	78-93-3	P07	S49	625	lb/hr	W	Yes	No	56.8	4.98E+05	249
Methyl Ethyl Ketone (MEK)	78-93-3	P07	S49	5.48E+06	lb/yr	W	Yes	No	56.8	4.98E+05	249
Methyl Ethyl Ketone (MEK)	78-93-3	P09	S09	625	lb/hr	W	Yes	No	5.02E-02	440	2.20E-01
Methyl Ethyl Ketone (MEK)	78-93-3	P09	S09	5.48E+06	lb/yr	W	Yes	No	5.02E-02	440	2.20E-01

Acetaldehyde is above the reference concentrations. Where emissions exceed the Reference Concentration, off-site impacts must be determined. The air quality review, see “Air Quality Review” section below, determined emissions of acetaldehyde will attain and maintain ambient air quality standards. No further review is required.

MAXIMUM ACHIEVABLE CONTROL TECHNOLOGY (MACT) STANDARD

P01, S01: 21 million BTU/hr Kewaunee Boiler-Installed 1996

P02, S02: 13.3 Million BTU/hr Kewaunee Boiler-Installed 1974

P03, S03: 16.7 Million BTU/hr Cleaver Brooks Boiler-Installed 1980

P04, S04: 10.5 Million BTU/hr ABCO Fire-tube Boiler-Installed 1989

P05, S05: 10.5 Million BTU/hr ABCO Fire-tube Boiler-Installed 1989

The facility is subject to the proposed MACT standard for Industrial/Commercial/Institutional Boilers and Process Heaters because the boilers are located at a major source for federal HAPs. The boilers have the capability to burn natural gas and #2 fuel oil. All five boilers are considered existing sources. The Industrial/Commercial/Institutional Boilers MACT standard has been finalized but it has not been published in the federal register prior to the completion of construction permit 04-SJZ-142 and operation permit 617056660-P01. The compliance date has not been determined prior to the completion of construction permit 04-SJZ-142 and operation permit 617056660-P01. At current operation, the boilers will be able to meet the proposed MACT standard because currently proposed, no standards exists for existing boilers that burn natural gas and #2 fuel oil, which are gaseous and liquid fuels.

Process I2: E-Beam

Process I6: Hot Melt Coater (PC&RP Division)

Process I7: Elastic Coating 1 (PC&RP Division)

Process I8: Elastic Coating 2 (PC&RP Division)

The E-Beam identified as I2 and PC&RP lines (hot melt coater, elastic coating 1 and elastic coating 2 identified as I6, I7, and I8) are subject to the MACT standard for Paper and Other Web Coating in section 40 CFR 63 Subpart JJJJ because the facility is a major source for federal HAPs at which web coating lines are operated. The E-Beam and PC&RP lines I6, I7, and I8 meet the definition of a web coating line. A web coating line is defined in 40 CFR 63.3310 as any number of work stations, of which one or more applies a continuous layer of coating material across the entire width or any portion of the width of a web substrate, and any associated curing/drying equipment between an unwind or feed station and a rewind or cutting station. The MACT standard for Paper and Other Web Coating was finalized on December 4, 2002. The E-Beam and PC&RP lines I6, I7, and I8 are considered existing sources because the 3M facility was constructed on or before September 13, 2000. Under the Paper and Other Web Coating MACT standard, an existing facility is required to be in compliance with the final rule no later than three

years after the publication date or December 4, 2005. Please refer to construction permit 04-SJZ-142 and operation permit 617056660-P01 for requirements.

The extrusion lines 1, 2, and 3, (identified as process I3, I4, I5) and film line (identified as process I9) are not subject to the MACT standard for Paper and Other Web Coating in section 40 CFR 63 Subpart JJJJ because processes I3, I4, I5, and I9 do not meet the definition of a web coating line.

Process P10, S10, S20: MRC Resin Coating Line 1-Installed 1994, Last Modified 2000

Process P11, S11, S21: MRC Resin Coating Line 2-Installed 1994, Last Modified 2000

Process P12, S12: MRC Resin Coating Line 3-Installed 1995, Last Modified 2000

Process P13, S13, S23: MRC Resin Coating Line 4-Installed 2000

Process P06, S06, S36: MRC Resin Coating Line 5-Installed 2003

Process P21, S50, S51, S52, S53: MRC Resin Coating Line 6-Installed 2004

The MRC resin coating lines P06, P10, P11, P12, P13, and P21 are subject to the MACT standard for Paper and Other Web Coating in section 40 CFR 63 Subpart JJJJ because the facility is a major source for federal HAPs at which web coating lines are operated. The MACT standard for Paper and Other Web Coating was finalized on December 4, 2002. The MRC resin coating line process as a whole is considered an existing source because the 3M facility was initially constructed on or before September 13, 2000. Under the Paper and Other Web Coating MACT standard, an existing source is required to be in compliance with the final rule no later than three years after the publication date or December 4, 2005.

No hazardous air pollutant (HAP) emissions are emitted from the MRC resin coating lines (1-6) but the requirements in the MACT standard for Paper and Other Web Coating in section 40 CFR 63 Subpart JJJJ still apply because MRC resin coating lines meet the definition of a web coating line and the facility is a major source for federal HAPs. A web coating line is defined in 40 CFR 63.3310 as any number of work stations, of which one or more applies a continuous layer of coating material across the entire width or any portion of the width of a web substrate, and any associated curing/drying equipment between an unwind or feed station and a rewind or cutting station. Please refer to construction permit 04-SJZ-142 and operation permit 617056660-P01 for requirements.

P07, S07, S22, S24, S49: Tape Coating-Installed 1983

The tape coating line process P07 is subject to the MACT standard for Paper and Other Web Coating in section 40 CFR 63 Subpart JJJJ because the facility is a major source for federal HAPs at which web coating lines are operated. The tape coating line meets the definition of a web coating line. A web coating line is defined in 40 CFR 63.3310 as any number of work stations, of which one or more applies a continuous layer of coating material across the entire width or any portion of the width of a web substrate, and any associated curing/drying equipment between an unwind or feed station and a rewind or cutting station. The MACT standard for Paper and Other Web Coating was finalized on December 4, 2002. The tape coating line process P07 is considered an existing source because the 3M facility was constructed on or before September 13, 2000. Under the Paper and Other Web Coating MACT standard, an existing source is required to be in compliance with the final rule no later than three years after the publication date or December 4, 2005. Please refer to construction permit 04-SJZ-142 and operation permit 617056660-P01 for requirements.

The tape coating line process P07 is also subject to the MACT standard for Pressure Sensitive Tape and Label Surface Coating Operations in section 40 CFR 60 Subpart RR because the tape coating line is a coating line used in the manufacture of pressure sensitive tape and label materials. A coating line is

defined in 40 CFR 60.441 as any number or combination of adhesive, release, or precoat coating applicators, flashoff areas, and ovens which coat a continuous web, located between a web unwind station and a web rewind station, to produce pressure sensitive tape and label materials. Requirements listed in 40 CFR 63 Subpart JJJJ are only listed in construction permit 04-SJZ-142 and operation permit 617056660-P01 because requirements listed in 40 CFR 63 Subpart JJJJ are more restrictive than requirements listed in 40 CFR 60 Subpart RR. The MACT standard for Pressure Sensitive Tape and Label Surface Coating Operations in section 40 CFR 60 Subpart RR still applies. Please refer to construction permit 04-SJZ-142 and operation permit 617056660-P01 for requirements.

3M has requested to streamline the requirements subject to the tape coating line by demonstrating compliance with the most restrictive limit (MACT standard for Paper and Other Web Coating in section 40 CFR 63 Subpart JJJJ), however, all limits still apply to the tape coating line process P07. The tape coating line is subject to the 2.9 pounds per gallon, less water, as delivered of organic compounds in accordance with s. NR 422.07(2), Wis. Adm. Code, MACT standard for Paper and Other Web Coating in section 40 CFR 63 Subpart JJJJ, and MACT standard for Pressure Sensitive Tape and Label Surface Coating Operations in section 40 CFR 60 Subpart RR. The requirements under the MACT standard for Paper and Other Web Coating in section 40 CFR 63 Subpart JJJJ are the most restrictive requirements and have been only listed in the table of section I.F. of construction permit 04-SJZ-142 and operation permit 617056660-P01 in an effort to streamline permit requirements.

The MACT standard for Paper and Other Web Coating in section 40 CFR 63 Subpart JJJJ is more restrictive than the 2.9 pounds of VOC per gallon of coating, minus water, limit in s. NR 422.07, Wis. Adm. Code, and is explained below. The 2.9 pounds of VOC per gallon of coating limit has been converted to mass of VOC per mass of solids using the calculation procedures found in Appendix F of *Beyond VOC RACT CTG Requirements (EPA 453/R-95-010)*. Using these calculation procedures, a VOC density of 7.36 pounds of VOC per gallon of VOC, and a nonvolatile VOC density of 16 pounds of solids per gallon of solids, 2.9 pounds of VOC per gallon of coating equates to 0.299 pounds of VOC per pound of solids. A sample calculation is provided below.

$$\text{Volume of VOC} = (2.9 \text{ lb VOC/gal coating}) / (7.36 \text{ lb VOC/gal VOC}) = 0.338 \text{ gal VOC/gal coating}$$

Based on one gallon of coating, the volume of nonvolatile compounds is:

$$\text{Volume of NonVOC} = 1 \text{ gal} - \text{Vol of VOC}$$

$$\text{Volume of NonVOC} = 1 \text{ gal} - 0.338 \text{ gal VOC/gal coating}$$

$$\text{Volume of NonVOC} = 0.606 \text{ gal solids/gal coating}$$

$$\text{lb VOC/lb Solids} = (2.9 \text{ lb VOC/gal coating}) / (0.606 \text{ gal solids/gal coating}) / (16 \text{ lb solids/gal solids})$$

$$\text{lb VOC/lb Solids} = 0.299 \text{ lb VOC/lb Solids}$$

The MACT standard for Paper and Other Web Coating in section 40 CFR 63 Subpart JJJJ is more restrictive than the 2.9 pounds of VOC per gallon of coating, minus water, limit in s. NR 422.07, Wis. Adm. Code. Although the requirements in 40 CFR 63 Subpart JJJJ are more restrictive, the 2.9 pounds of VOC per gallon of coating, minus water, limit in s. NR 422.07, Wis. Adm. Code still applies to the tape coating line process P07, as mentioned in section I.F. of construction permit 04-SJZ-142 and operation permit 617056660-P01.

The requirements in the MACT standard for Paper and Other Web Coating in section 40 CFR 63 Subpart

JJJJ are assumed to be equivalent to or more restrictive than the requirements in the MACT standard for Pressure Sensitive Tape and Label Surface Coating Operations in section 40 CFR 60 Subpart RR. The requirements in 40 CFR 60 Subpart RR include a limit of 0.20 kilograms of VOC per kilograms of coating solids applied, which is identical to one of the emissions standards options in 40 CFR 63 Subpart JJJJ (40 CFR 63.3370(a)) when requirements in 40 CFR 63 Subpart JJJJ are applied on a VOC basis rather than a HAP basis. When 40 CFR 63 Subpart JJJJ requirements are applied to all coating lines (E-Beam (I2), PC&RP lines I6, I7, and I8, MRC resin coating lines P06, P10, P11, P12, P13, and P21, tape coating line process P07, and gamma line process P20) at the facility, it is assumed to be equivalent to or more restrictive than the requirements in 40 CFR 60 Subpart RR. Also, 40 CFR 63 Subpart JJJJ requires a control efficiency of 95 percent for existing affected sources when using a control device to comply, which is more restrictive than the control efficiency of 90 percent, required under 40 CFR 60 Subpart RR. Any affected source with inputs to the coating process of 45 megagrams (50 tons) or less per 12 month period is exempt from the emissions standards per 40 CFR 60.440(b). No such exemption exists under the emissions standards for 40 CFR 63 Subpart JJJJ. Although the requirements in 40 CFR 63 Subpart JJJJ are equivalent to or more restrictive when applied to all coating lines, 40 CFR 60 Subpart RR requirements still apply to the tape coating line process P07, as mentioned in section I.F. of construction permit 04-SJZ-142 and operation permit 617056660-P01.

P08, S08, S34, S35, C03, C04: Chrome Plating Process #2-Installed 2003

P14, S14, C02: Chrome Plating Process-Installed 1996

The chromium plating baths of Process P08 and the chromium plating baths of Process P14 are subject to the MACT standard for Hard and Decorative Chromium Electroplating and Chromium Anodizing Tanks [40 CFR 63 sub N] because the facility operates a chromium electroplating or chromium anodizing tank that performs hard chromium electroplating, decorative chromium electroplating, or chromium anodizing. The chromium plating baths of Process P08 and the chromium plating baths of Process P14 constitute two, distinct, existing Affected Sources under the federal MACT standard for Hard and Decorative Chromium Electroplating and Chromium Anodizing Tanks. Under the Hard and Decorative Chromium Electroplating and Chromium Anodizing Tanks MACT standard, an existing source is required to be in compliance with the final rule no later than 1 year after January 25, 1995, if the affected source is a decorative chromium electroplating tank; and no later than 2 years after January 25, 1995, if the affected source is a hard chromium electroplating tank or a chromium anodizing tank. Please refer to construction permit 04-SJZ-142 and operation permit 617056660-P01 for requirements.

P20, S31, S32, S33: Gamma Line-Installed 2003

The gamma line process P20 is subject to the MACT standard for Paper and Other Web Coating in section 40 CFR 63 Subpart JJJJ because the facility is a major source for federal HAPs at which web coating lines are operated. The gamma line meets the definition of a web coating line. A web coating line is defined in 40 CFR 63.3310 as any number of work stations, of which one or more applies a continuous layer of coating material across the entire width or any portion of the width of a web substrate, and any associated curing/drying equipment between an unwind or feed station and a rewind or cutting station. The gamma line process P20 is considered an existing source because the 3M facility was constructed on or before September 13, 2000. Under the Paper and Other Web Coating MACT standard, an existing source is required to be in compliance with the final rule no later than three years after the publication date or December 4, 2005. Please refer to construction permit 04-SJZ-142 and operation permit 617056660-P01 for requirements.

3M has requested to streamline the requirements subject to the gamma line by demonstrating compliance with the most restrictive limit (MACT standard for Paper and Other Web Coating in section 40 CFR 63 Subpart JJJJ), however, all limits still apply to the gamma line process P20. The gamma line is subject to the Latest Available Control Technology (LACT) determined limits of 1,666 pound of VOC per month and utilizing water-based solutions as its main coating solution and the MACT standard for Paper and Other Web Coating in section 40 CFR 63 Subpart JJJJ. The requirements under the MACT standard for Paper and Other Web Coating in section 40 CFR 63 Subpart JJJJ are the most restrictive requirements and have been only listed in the table of section I.F. of construction permit 04-SJZ-142 and operation permit 617056660-P01 in an effort to streamline permit requirements.

The 1,666 pounds of VOC per month limit has been converted to mass of VOC per mass of solids using the calculation procedures found in Appendix F of *Beyond VOC RACT CTG Requirements (EPA 453/R-95-010)*. Using these calculation procedures, a coating usage rate of 7.55 gallons of coating per hour, a VOC density of 7.36 pounds of VOC per gallon of VOC, and a nonvolatile VOC density of 16 pounds of solids per gallon of solids, the 1,666 pounds of VOC per month limit equates to 0.0197 pounds of VOC per pound of solids. A sample calculation is provided below.

Convert 1,666 lb VOC/month to lb VOC/gal = $(1,666 \text{ lb VOC/month}) * (12 \text{ months/yr}) / (365 \text{ day/yr}) / (24 \text{ hr/day}) / (7.55 \text{ gal/hr}) = 0.302 \text{ lb VOC/gal coating}$

Volume of VOC = $(0.302 \text{ lb VOC/gal coating}) / (7.36 \text{ lb VOC/gal VOC}) = 0.0411 \text{ gal VOC/gal coating}$

Based on one gallon of coating, the volume of nonvolatile compounds is:

Volume of NonVOC = 1 gal – Vol of VOC

Volume of NonVOC = 1 gal – 0.0411 gal VOC/gal coating

Volume of NonVOC = 0.959 gal solids/gal coating

lb VOC/lb Solids = $(0.302 \text{ lb VOC/gal coating}) / (0.959 \text{ gal solids/gal coating}) / (16 \text{ lb solids/gal solids})$

lb VOC/lb Solids = 0.0197 lb VOC/lb Solids

The 1,666 pounds of VOC per month limit determined by the LACT analysis is slightly more restrictive when the requirements in 40 CFR 63 Subpart JJJJ are applied to the gamma line process P20 only. The compliance demonstrations that 3M has selected under 40 CFR 63 Subpart JJJJ applies to all web coating lines (E-Beam (I2), PC&RP lines I6, I7, and I8, MRC resin coating lines P06, P10, P11, P12, P13, and P21, tape coating line process P07, and gamma line process P20) at the facility. The limit of 0.20 kilograms of VOC per kilograms of coating solids (0.20 pounds of VOC per pound of solids) in 40 CFR 63.3370(b) will be used in comparison with the LACT limit of 1,666 pounds of VOC per month. When 40 CFR 63 Subpart JJJJ requirement of 0.20 pounds of VOC per pound of solids is applied evenly to all 12 web coating lines $(0.20 \text{ lb VOC/lb solids}/12 = 0.0167 \text{ pounds of VOC per pound of solids per web coating line})$, it is more restrictive than the LACT determined limit of 1,666 pound of VOC per month (0.0197 pounds of VOC per pound of solids).

The MACT standard for Paper and Other Web Coating in 40 CFR 63 Subpart JJJJ is more restrictive than the LACT limit of 1,666 pound of VOC per month. Although the requirements in 40 CFR 63 Subpart JJJJ are more restrictive when applied to all web coating lines, 1,666 pounds of VOC per month limit determined by LACT still applies to the gamma line process P20, as mentioned in section I.F. of

construction permit 04-SJZ-142 and operation permit 617056660-P01.

AIR QUALITY REVIEW

A modeling analysis was completed by John Roth on April 7, 2004. This analysis assessed the impact of the particulate matter, sulfur dioxide, nitrogen oxides, carbon monoxide, and acetaldehyde emissions from the sources at 3M in Menomonie (Dunn County) in support of construction permit 03-JAJ-240, construction permit 04-SJZ-142 and operation permit 617056660-P01, and the Environmental Cooperative Agreement. Terrain is not a factor in the immediate area, so elevations were not considered in this analysis.

The results demonstrate that the ambient air quality standards for acetaldehyde, CO, SO₂, NO_x, TSP and PM₁₀ will be attained and maintained assuming the emission rates and stack parameters listed in the attached source table in the April 7, 2004 modeling memorandum.

Modeling Analysis Results (All Concentrations in $\mu\text{g}/\text{m}^3$)				
	TSP – 24 hr	PM ₁₀ – 24 hr	PM ₁₀ – Annual	NO _x – Annual
New Source Impact	27.2	27.2	3.47	9.72
PSD Class II Increment	-	30.0	17.0	25.0
% Increment Consumed	-	90.7	20.4	38.9
Total Facility Impact	27.2	27.2	4.6	29.9
Background Concentration	41.8	29.8	9.8	4.7
Total Concentration	69.0	57.0	14.4	34.6
NAAQS	150.0	150.0	50.0	100.0
% NAAQS	46.0	38.0	28.8	34.6

Modeling Analysis Results (All Concentrations in $\mu\text{g}/\text{m}^3$)			
	SO ₂ – 3 hr	SO ₂ – 24 hr	SO ₂ – Annual
New Source Impact	56.0	20.4	2.03
PSD Class II Increment	512.0	91.0	20.0
% Increment Consumed	10.9	22.4	10.2
Total Facility Impact	229.1	76.9	7.6
Background Concentration	137.1	35.2	7.9
Total Concentration	366.2	112.1	15.5
NAAQS	1,300.0	365.0	80.0
% NAAQS	28.2	30.7	19.4

Modeling Analysis Results (All Concentrations in $\mu\text{g}/\text{m}^3$)	
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	CO – 1 hr	CO – 8 hr	Acetaldehyde – 24 hr	Acetaldehyde – Annual
Total Facility Impact	1,844.7	870.3	14.6	0.84
Background Concentration	3,188.0	890.4	-	-
Total Concentration	5,032.7	1,760.7	14.6	0.84
AAQS	40,000	10,000	4,320	9.0
% AAQS	12.6	17.6	0.3	9.3

Conclusion: The results of the modeling analysis demonstrate that the applicable air quality standards will be satisfied assuming the emissions rates and stack parameters listed in the source table in the April 7, 2004 modeling memorandum.

FACILITY EMISSIONS

Actual emissions are the total emissions generated by the emission sources identified below over the specified time period taking into account any reductions made by a control device or technique. Maximum theoretical emissions are the quantity of air contaminants that theoretically could be emitted by the emissions sources identified below, without considering emission control devices, based on the design capacity of the source. Potential to emit is the maximum capacity of the emission sources identified below to emit any air contaminant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air contaminant shall be treated as part of its design if the limitation is Federally enforceable.

Stack Emissions.

1. **P01, S01: 21 million BTU/hr Kewaunee Boiler-Installed 1996** All maximum theoretical and potential to emit emissions were supplied by the facility.

P01, S01: Criteria Pollutant Emissions from Natural Gas Combustion

Criteria Pollutant	Emission Factor	AP-42 Table	Actual Emissions		Maximum Theoretical Emissions		Allowable Emissions	
	lb/10 ⁶ SCF		lb/yr	ton/yr	lb/hr	ton/yr	lb/mmBTU	lb/hr
Carbon Monoxide	84.0	1.4-1	NM	NM	1.76	7.73	N/A	N/A
Nitrogen Oxide	100	1.4-1	NM	NM	2.10	9.20	N/A	N/A
Particulate Matter	7.60	1.4-2	NM	NM	1.60E-01	6.99E-01	N/A	3.00E-01
Sulfur Dioxide	6.00E-01	1.4-2	NM	NM	1.26E-02	5.52E-02	N/A	N/A
Volatile Organic Compound	5.50	1.4-2	NM	NM	1.16E-01	5.06E-01	N/A	N/A

NM – Not Measured

N/A – Not Applicable-general conditions apply

P01, S01: Hazardous Air Pollutant Emissions from Natural Gas Combustion

Hazardous Air Pollutant	Emission Factor	AP-42 Table	Actual Emissions		Maximum Theoretical Emissions		NR 445 Threshold Values (Stacks 25 to < 40 ft)	Units	NR 445 Table	Federal Listed HAP	State Listed HAP
	lb/mmSCF		lb/yr	ton/yr	lb/hr	lb/yr					
Arsenic	2.00E-04	1.4-4	NM	NM	4.20E-06	3.68E-02	1.70	lb/yr	A	Yes	
Benzene	2.10E-03	1.4-3	NM	NM	4.41E-05	3.86E-01	936	lb/yr	A	Yes	
Beryllium	1.20E-05	1.4-4	NM	NM	2.52E-07	2.21E-03	14.6	lb/yr	A	Yes	

Hazardous Air Pollutant	Emission Factor	AP-42 Table	Actual Emissions		Maximum Theoretical Emissions		NR 445 Threshold Values (Stacks 25 to < 40 ft)	Units	NR 445 Table	Federal Listed HAP	State Listed HAP	Potential to Emit		
	lb/mmSCF		lb/yr	ton/yr	lb/hr	lb/yr						lb/hr	lb/yr	ton/yr
Cadmium	1.10E-03	1.4-4	NM	NM	2.31E-05	2.02E-01	4.06	lb/yr	A	Yes	Yes	2.31E-05	2.02E-01	1.01E-04
Formaldehyde	7.50E-02	1.4-3	NM	NM	1.58E-03	1.38E+01	562	lb/yr	A	Yes	Yes	1.58E-03	1.38E+01	6.90E-03
Hexane	1.80	1.4-3	NM	NM	3.78E-02	3.31E+02	36.8	lb/hr	A	Yes	Yes	3.78E-02	3.31E+02	1.66E-01
Manganese	3.80E-04	1.4-4	NM	NM	7.98E-06	6.99E-02	4.17E-02	lb/hr	A	Yes	Yes	7.98E-06	6.99E-02	3.50E-05
Mercury aryl and inorganic compounds	2.60E-04	1.4-4	NM	NM	5.46E-06	4.78E-02	5.22E-03	lb/hr	A	Yes	No	5.46E-06	4.78E-02	2.39E-05
Naphthalene	6.10E-04	1.4-3	NM	NM	1.28E-05	1.12E-01	10.9	lb/hr	A	Yes	Yes	1.28E-05	1.12E-01	5.61E-05
Nickel	2.10E-03	1.4-4	NM	NM	4.41E-05	3.86E-01	28.1	lb/yr	A	Yes	Yes	4.41E-05	3.86E-01	1.93E-04
Selenium	2.40E-05	1.4-4	NM	NM	5.04E-07	4.42E-03	4.17E-02	lb/hr	A	Yes	Yes	5.04E-07	4.42E-03	2.21E-06
Toluene	3.40E-03	1.4-3	NM	NM	7.14E-05	6.25E-01	39.3	lb/hr	A	Yes	Yes	7.14E-05	6.25E-01	3.13E-04

NM – Not Measured

P01, S01: Criteria Pollutant Emissions from #2 Fuel Oil Combustion

Criteria Pollutant	Emission Factor	AP-42 Table	Actual Emissions		Maximum Theoretical Emissions		Allowable Emissions			Potential To Emit	
	lb/1,000 gal		lb/yr	ton/yr	lb/hr	ton/yr	lb/mmBTU	lb/hr	ton/yr	lb/hr	ton/yr
Carbon Monoxide	5.00	1.3-1	5.00E-01	2.19	7.50E-01	3.29	N/A	N/A	N/A	7.50E-01	3.29
Nitrogen Oxide	20.0	1.3-1	5.90E-01	2.58	3.00	13.1	N/A	N/A	N/A	3.00	13.1
Particulate Matter	2.00	1.3-1	1.30E-01	5.69E-01	3.00E-01	1.31	N/A	3.00E-01	1.31	3.00E-01	1.31
Sulfur Dioxide	142S	1.3-1	4.79E-03	2.10E-02	1.07	4.66	N/A	N/A	N/A	1.07	4.66
Volatile Organic Compound	2.52E-01	1.3-3	3.00E-02	1.31E-01	3.78E-02	1.66E-01	N/A	N/A	N/A	3.78E-02	1.66E-01

NM – Not Measured

N/A – Not Applicable-general conditions apply

P01, S01: Hazardous Air Pollutant Emissions from #2 Fuel Oil Combustion

Hazardous Air Pollutant	Emission Factor	AP-42 Table	Actual Emissions		Maximum Theoretical Emissions		NR 445 Threshold Values (Stacks 25 to < 40 ft)	Units	NR 445 Table	Federal Listed HAP	State Listed HAP	Potential to Emit		
	lb/1,000 gal		lb/yr	ton/yr	lb/hr	lb/yr						lb/hr	lb/yr	ton/yr

Benzene	2.14E-04	1.3-9	NM	NM	3.21E-05	2.81E-01	936	lb/yr	A	Yes	Yes	3.21E-05	2.81E-01	1.41E-04
Ethylbenzene	6.36E-05	1.3-9	NM	NM	9.54E-06	8.36E-02	90.6	lb/hr	A	Yes	Yes	9.54E-06	8.36E-02	4.18E-05
Formaldehyde	6.10E-02	1.3-8	NM	NM	9.15E-03	8.02E+01	562	lb/yr	A	Yes	Yes	9.15E-03	8.02E+01	4.01E-02
Naphthalene	1.13E-03	1.3-9	NM	NM	1.70E-04	1.48	10.9	lb/hr	A	Yes	Yes	1.70E-04	1.48	7.42E-04
Toluene	6.20E-03	1.3-9	NM	NM	9.30E-04	8.15	39.3	lb/hr	A	Yes	Yes	9.30E-04	8.15	4.07E-03

NM – Not Measured

P01, S01: Hazardous Air Pollutant Emissions from #2 Fuel Oil Combustion

Hazardous Air Pollutant	Emission Factor	AP-42 Table	Actual Emissions		Maximum Theoretical Emissions		NR 445 Threshold Values (Stacks 25 to < 40 ft)	Units	NR 445 Table	Federal Listed HAP	State Listed HAP	Potential to Emit		
	lb/10 ¹² BTU		lb/yr	ton/yr	lb/hr	lb/yr						lb/hr	lb/yr	ton/yr
Arsenic	4.00	1.3-10	NM	NM	8.40E-05	7.36E-01	1.70	lb/yr	A	Yes	Yes	8.40E-05	7.36E-01	3.68E-04
Beryllium	3.00	1.3-10	NM	NM	6.30E-05	5.52E-01	14.6	lb/yr	A	Yes	Yes	6.30E-05	5.52E-01	2.76E-04
Cadmium	3.00	1.3-10	NM	NM	6.30E-05	5.52E-01	4.06	lb/yr	A	Yes	Yes	6.30E-05	5.52E-01	2.76E-04
Manganese	6.00	1.3-10	NM	NM	1.26E-04	1.10	4.17E-02	lb/hr	A	Yes	Yes	1.26E-04	1.10	5.52E-04
Mercury aryl and inorganic compounds	3.00	1.3-10	NM	NM	6.30E-05	5.52E-01	5.22E-03	lb/hr	A	Yes	No	6.30E-05	5.52E-01	2.76E-04
Nickel	3.00	1.3-10	NM	NM	6.30E-05	5.52E-01	28.1	lb/yr	A	Yes	Yes	6.30E-05	5.52E-01	2.76E-04
Selenium	15.0	1.3-10	NM	NM	3.15E-04	2.76	4.17E-02	lb/hr	A	Yes	Yes	3.15E-04	2.76	1.38E-03

NM – Not Measured

2. **P02, S02: 13.3 Million BTU/hr Kewaunee Boiler-Installed 1974** All maximum theoretical and potential to emit emissions were supplied by the facility.

P02, S02: Criteria Pollutant Emissions from Natural Gas Combustion

Criteria Pollutant	Emission Factor	AP-42 Table	Actual Emissions		Maximum Theoretical Emissions		Allowable Emissions			Potential to Emit	
	lb/10 ⁶ SCF		lb/yr	ton/yr	lb/hr	ton/yr	lb/mmBTU	lb/hr	ton/yr	lb/hr	ton/yr
Carbon Monoxide	84.0	1.4-1	NM	NM	1.12	4.89	N/A	N/A	N/A	1.12	4.89
Nitrogen Oxide	100	1.4-1	NM	NM	1.33	5.83	N/A	N/A	N/A	1.33	5.83
Particulate Matter	7.60	1.4-2	NM	NM	1.01E-01	4.43E-01	N/A	1.90E-01	8.32E-01	1.01E-01	4.43E-01
Sulfur Dioxide	6.00E-01	1.4-2	NM	NM	7.98E-03	3.50E-02	N/A	N/A	N/A	7.98E-03	3.50E-02
Volatile Organic Compound	5.50	1.4-2	NM	NM	7.32E-02	3.20E-01	N/A	N/A	N/A	7.32E-02	3.20E-01

NM – Not Measured

N/A – Not Applicable-general conditions apply

P02, S02: Hazardous Air Pollutant Emissions from Natural Gas Combustion

Hazardous Air Pollutant	Emission Factor	AP-42 Table	Actual Emissions		Maximum Theoretical Emissions		NR 445 Threshold Values (Stacks 25 to < 40 ft)	Units	NR 445 Table	Federal Listed HAP	State Listed HAP	Potential to Emit		
	lb/mmSCF		lb/yr	ton/yr	lb/hr	lb/yr						lb/hr	lb/yr	ton/yr
Arsenic	2.00E-04	1.4-4	NM	NM	2.66E-06	2.33E-02	1.70	lb/yr	A	Yes	Yes	2.66E-06	2.33E-02	1.17E-05
Benzene	2.10E-03	1.4-3	NM	NM	2.79E-05	2.45E-01	936	lb/yr	A	Yes	Yes	2.79E-05	2.45E-01	1.22E-04
Beryllium	1.20E-05	1.4-4	NM	NM	1.60E-07	1.40E-03	14.6	lb/yr	A	Yes	Yes	1.60E-07	1.40E-03	6.99E-07
Cadmium	1.10E-03	1.4-4	NM	NM	1.46E-05	1.28E-01	4.06	lb/yr	A	Yes	Yes	1.46E-05	1.28E-01	6.41E-05
Formaldehyde	7.50E-02	1.4-3	NM	NM	9.98E-04	8.74	562	lb/yr	A	Yes	Yes	9.98E-04	8.74	4.37E-03
Hexane	1.80	1.4-3	NM	NM	2.39E-02	2.10E+02	36.8	lb/hr	A	Yes	Yes	2.39E-02	2.10E+02	1.05E-01
Manganese	3.80E-04	1.4-4	NM	NM	5.05E-06	4.43E-02	4.17E-02	lb/hr	A	Yes	Yes	5.05E-06	4.43E-02	2.21E-05
Mercury aryl and inorganic compounds	2.60E-04	1.4-4	NM	NM	3.46E-06	3.03E-02	5.22E-03	lb/hr	A	Yes	No	3.46E-06	3.03E-02	1.51E-05
Naphthalene	6.10E-04	1.4-3	NM	NM	8.11E-06	7.11E-02	10.9	lb/hr	A	Yes	Yes	8.11E-06	7.11E-02	3.55E-05
Nickel	2.10E-03	1.4-4	NM	NM	2.79E-05	2.45E-01	28.1	lb/yr	A	Yes	Yes	2.79E-05	2.45E-01	1.22E-04
Selenium	2.40E-05	1.4-4	NM	NM	3.19E-07	2.80E-03	4.17E-02	lb/hr	A	Yes	Yes	3.19E-07	2.80E-03	1.40E-06
Toluene	3.40E-03	1.4-3	NM	NM	4.52E-05	3.96E-01	39.3	lb/hr	A	Yes	Yes	4.52E-05	3.96E-01	1.98E-04

NM – Not Measured

P02, S02: Criteria Pollutant Emissions from #2 Fuel Oil Combustion

Criteria Pollutant	Emission Factor	AP-42 Table	Actual Emissions		Maximum Theoretical Emissions		Allowable Emissions			Potential To Emit	
	lb/1,000 gal		lb/yr	ton/yr	lb/hr	ton/yr	lb/mmBTU	lb/hr	ton/yr	lb/hr	ton/yr
Carbon Monoxide	5.00	1.3-1	5.00E-01	2.19	4.75E-01	2.08	N/A	N/A	N/A	4.75E-01	2.08
Nitrogen Oxide	20.0	1.3-1	5.90E-01	2.58	1.90	8.32	N/A	N/A	N/A	1.90	8.32
Particulate Matter	2.00	1.3-1	1.30E-01	5.69E-01	1.90E-01	8.32E-01	N/A	1.90E-01	8.32E-01	1.90E-01	8.32E-01
Sulfur Dioxide	142S	1.3-1	4.79E-03	2.10E-02	6.75E-01	2.95	N/A	N/A	N/A	6.75E-01	2.95
Volatile Organic Compound	2.52E-01	1.3-3	3.00E-02	1.31E-01	2.39E-02	1.05E-01	N/A	N/A	N/A	2.39E-02	1.05E-01

N/A – Not Applicable-general conditions apply

P02, S02: Hazardous Air Pollutant Emissions #2 Fuel Oil Combustion

Hazardous Air Pollutant	Emission Factor	AP-42 Table	Actual Emissions		Maximum Theoretical Emissions		NR 445 Threshold Values (Stacks 25 to < 40 ft)	Units	NR 445 Table	Federal Listed HAP	State Listed HAP	Potential to Emit		
	lb/1,000 gal		lb/yr	ton/yr	lb/hr	lb/yr						lb/hr	lb/yr	ton/yr
Benzene	2.14E-04	1.3-9	NM	NM	2.03E-05	1.78E-01	936	lb/yr	A	Yes	Yes	2.03E-05	1.78E-01	8.90E-05
Ethylbenzene	6.36E-05	1.3-9	NM	NM	6.04E-06	5.29E-02	90.6	lb/hr	A	Yes	Yes	6.04E-06	5.29E-02	2.65E-05
Formaldehyde	6.10E-02	1.3-8	NM	NM	5.80E-03	5.08E+01	562	lb/yr	A	Yes	Yes	5.80E-03	5.08E+01	2.54E-02
Naphthalene	1.13E-03	1.3-9	NM	NM	1.07E-04	9.40E-01	10.9	lb/hr	A	Yes	Yes	1.07E-04	9.40E-01	4.70E-04
Toluene	6.20E-03	1.3-9	NM	NM	5.89E-04	5.16	39.3	lb/hr	A	Yes	Yes	5.89E-04	5.16	2.58E-03

NM – Not Measured

P02, S02: Hazardous Air Pollutant Emissions #2 Fuel Oil Combustion

Hazardous Air Pollutant	Emission Factor	AP-42 Table	Actual Emissions		Maximum Theoretical Emissions		NR 445 Threshold Values (Stacks 25 to < 40 ft)	Units	NR 445 Table	Federal Listed HAP	State Listed HAP	Potential to Emit		
	lb/10 ¹² BTU		lb/yr	ton/yr	lb/hr	lb/yr						lb/hr	lb/yr	ton/yr
Arsenic	4.00	1.3-10	NM	NM	5.32E-05	4.66E-01	1.70	lb/yr	A	Yes	Yes	5.32E-05	4.66E-01	2.33E-04
Beryllium	3.00	1.3-10	NM	NM	3.99E-05	3.50E-01	14.6	lb/yr	A	Yes	Yes	3.99E-05	3.50E-01	1.75E-04
Cadmium	3.00	1.3-10	NM	NM	3.99E-05	3.50E-01	4.06	lb/yr	A	Yes	Yes	3.99E-05	3.50E-01	1.75E-04
Manganese	6.00	1.3-10	NM	NM	7.98E-05	6.99E-01	4.17E-02	lb/hr	A	Yes	Yes	7.98E-05	6.99E-01	3.50E-04
Mercury aryl and inorganic compounds	3.00	1.3-10	NM	NM	3.99E-05	3.50E-01	5.22E-03	lb/hr	A	Yes	No	3.99E-05	3.50E-01	1.75E-04
Nickel	3.00	1.3-10	NM	NM	3.99E-05	3.50E-01	28.1	lb/yr	A	Yes	Yes	3.99E-05	3.50E-01	1.75E-04
Selenium	15.0	1.3-10	NM	NM	2.00E-04	1.75	4.17E-02	lb/hr	A	Yes	Yes	2.00E-04	1.75	8.74E-04

NM – Not Measured

3. **P03, S03: 16.7 Million BTU/hr Cleaver Brooks Boiler-Installed 1980** All maximum theoretical and potential to emit emissions were supplied by the facility.**P03, S03: Criteria Pollutant Emissions from Natural Gas Combustion**

Criteria Pollutant	Emission Factor	AP-42 Table	Actual Emissions		Maximum Theoretical Emissions		Allowable Emissions			Potential to Emit	
	lb/10 ⁶ SCF		lb/yr	ton/yr	lb/hr	ton/yr	lb/mmBTU	lb/hr	ton/yr	lb/hr	ton/yr
Carbon Monoxide	84.0	1.4-1	NM	NM	1.40	6.14	N/A	N/A	N/A	1.40	6.14
Nitrogen Oxide	100	1.4-1	NM	NM	1.67	7.31	N/A	N/A	N/A	1.67	7.31

Criteria Pollutant	Emission Factor	AP-42 Table	Actual Emissions		Maximum Theoretical Emissions		Allowable Emissions			Potential to Emit	
	lb/10 ⁶ SCF		lb/yr	ton/yr	lb/hr	ton/yr	lb/mmBTU	lb/hr	ton/yr	lb/hr	ton/yr
Particulate Matter	7.60	1.4-2	NM	NM	1.27E-01	5.56E-01	N/A	1.90E-01	8.32E-01	1.27E-01	5.56E-01
Sulfur Dioxide	6.00E-01	1.4-2	NM	NM	1.00E-02	4.39E-02	N/A	N/A	N/A	1.00E-02	4.39E-02
Volatile Organic Compound	5.50	1.4-2	NM	NM	9.19E-02	4.02E-01	N/A	N/A	N/A	9.19E-02	4.02E-01

NM – Not Measured

N/A – Not Applicable-general conditions apply

P03, S03: Hazardous Air Pollutant Emissions from Natural Gas Combustion

Hazardous Air Pollutant	Emission Factor	AP-42 Table	Actual Emissions		Maximum Theoretical Emissions		NR 445 Threshold Values (Stacks 25 to < 40 ft)	Units	NR 445 Table	Federal Listed HAP	State Listed HAP	Potential to Emit		
	lb/mmSCF		lb/yr	ton/yr	lb/hr	lb/yr						lb/hr	lb/yr	ton/yr
Arsenic	2.00E-04	1.4-4	NM	NM	3.34E-06	2.93E-02	1.70	lb/yr	A	Yes	Yes	3.34E-06	2.93E-02	1.46E-05
Benzene	2.10E-03	1.4-3	NM	NM	3.51E-05	3.07E-01	936	lb/yr	A	Yes	Yes	3.51E-05	3.07E-01	1.54E-04
Beryllium	1.20E-05	1.4-4	NM	NM	2.00E-07	1.76E-03	14.6	lb/yr	A	Yes	Yes	2.00E-07	1.76E-03	8.78E-07
Cadmium	1.10E-03	1.4-4	NM	NM	1.84E-05	1.61E-01	4.06	lb/yr	A	Yes	Yes	1.84E-05	1.61E-01	8.05E-05
Formaldehyde	7.50E-02	1.4-3	NM	NM	1.25E-03	10.97	562	lb/yr	A	Yes	Yes	1.25E-03	10.97	5.49E-03
Hexane	1.80	1.4-3	NM	NM	3.01E-02	2.63E+02	36.8	lb/hr	A	Yes	Yes	3.01E-02	2.63E+02	1.32E-01
Manganese	3.80E-04	1.4-4	NM	NM	6.35E-06	5.56E-02	4.17E-02	lb/hr	A	Yes	Yes	6.35E-06	5.56E-02	2.78E-05
Mercury aryl and inorganic compounds	2.60E-04	1.4-4	NM	NM	4.34E-06	3.80E-02	5.22E-03	lb/hr	A	Yes	No	4.34E-06	3.80E-02	1.90E-05
Naphthalene	6.10E-04	1.4-3	NM	NM	1.02E-05	8.92E-02	10.9	lb/hr	A	Yes	Yes	1.02E-05	8.92E-02	4.46E-05
Nickel	2.10E-03	1.4-4	NM	NM	3.51E-05	3.07E-01	28.1	lb/yr	A	Yes	Yes	3.51E-05	3.07E-01	1.54E-04
Selenium	2.40E-05	1.4-4	NM	NM	4.01E-07	3.51E-03	4.17E-02	lb/hr	A	Yes	Yes	4.01E-07	3.51E-03	1.76E-06
Toluene	3.40E-03	1.4-3	NM	NM	5.68E-05	4.97E-01	39.3	lb/hr	A	Yes	Yes	5.68E-05	4.97E-01	2.49E-04

NM – Not Measured

P03, S03: Criteria Pollutant Emissions from #2 Fuel Oil Combustion

Criteria Pollutant	Emission Factor	AP-42 Table	Actual Emissions		Maximum Theoretical Emissions	Allowable Emissions	Potential To Emit
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	lb/1,000 gal		lb/yr	ton/yr	lb/hr	ton/yr	lb/mmBTU	lb/hr	ton/yr	lb/hr	ton/yr
Carbon Monoxide	5.00	1.3-1	5.00E-01	2.19	5.96E-01	2.61	N/A	N/A	N/A	5.96E-01	2.61
Nitrogen Oxide	20.0	1.3-1	5.90E-01	2.58	2.39	10.4	N/A	N/A	N/A	2.39	10.4
Particulate Matter	2.00	1.3-1	1.30E-01	5.69E-01	2.39E-01	1.04	N/A	2.39E-01	1.04	2.39E-01	1.04
Sulfur Dioxide	142S	1.3-1	4.79E-03	2.10E-02	8.47E-01	3.71	N/A	N/A	N/A	8.47E-01	3.71
Volatile Organic Compound	2.52E-01	1.3-3	3.00E-02	1.31E-01	3.01E-02	1.32E-01	N/A	N/A	N/A	3.01E-02	1.32E-01

NM – Not Measured

N/A – Not Applicable-general conditions apply

P03, S03: Hazardous Air Pollutant Emissions #2 Fuel Oil Combustion

Hazardous Air Pollutant	Emission Factor	AP-42 Table	Actual Emissions		Maximum Theoretical Emissions		NR 445 Threshold Values (Stacks 25 to < 40 ft)	Units	NR 445 Table	Federal Listed HAP	State Listed HAP	Potential to Emit		
	lb/1,000 gal		lb/yr	ton/yr	lb/hr	lb/yr						lb/hr	lb/yr	ton/yr
Benzene	2.14E-04	1.3-9	NM	NM	2.55E-05	2.24E-01	936	lb/yr	A	Yes	Yes	2.55E-05	2.24E-01	1.12E-04
Ethylbenzene	6.36E-05	1.3-9	NM	NM	7.59E-06	6.65E-02	90.6	lb/hr	A	Yes	Yes	7.59E-06	6.65E-02	3.32E-05
Formaldehyde	6.10E-02	1.3-8	NM	NM	7.28E-03	6.37E+01	562	lb/yr	A	Yes	Yes	7.28E-03	6.37E+01	3.19E-02
Naphthalene	1.13E-03	1.3-9	NM	NM	1.35E-04	1.18	10.9	lb/hr	A	Yes	Yes	1.35E-04	1.18	5.90E-04
Toluene	6.20E-03	1.3-9	NM	NM	7.40E-04	6.48	39.3	lb/hr	A	Yes	Yes	7.40E-04	6.48	3.24E-03

NM – Not Measured

P03, S03: Hazardous Air Pollutant Emissions #2 Fuel Oil Combustion

Hazardous Air Pollutant	Emission Factor	AP-42 Table	Actual Emissions		Maximum Theoretical Emissions		NR 445 Threshold Values (Stacks 25 to < 40 ft)	Units	NR 445 Table	Federal Listed HAP	State Listed HAP	Potential to Emit		
	lb/10 ¹² BTU		lb/yr	ton/yr	lb/hr	lb/yr						lb/hr	lb/yr	ton/yr
Arsenic	4.00	1.3-10	NM	NM	6.68E-05	5.85E-01	1.70	lb/yr	A	Yes	Yes	6.68E-05	5.85E-01	2.93E-04
Beryllium	3.00	1.3-10	NM	NM	5.01E-05	4.39E-01	14.6	lb/yr	A	Yes	Yes	5.01E-05	4.39E-01	2.19E-04
Cadmium	3.00	1.3-10	NM	NM	5.01E-05	4.39E-01	4.06	lb/yr	A	Yes	Yes	5.01E-05	4.39E-01	2.19E-04
Manganese	6.00	1.3-10	NM	NM	1.00E-04	8.78E-01	4.17E-02	lb/hr	A	Yes	Yes	1.00E-04	8.78E-01	4.39E-04
Mercury aryl and inorganic compounds	3.00	1.3-10	NM	NM	5.01E-05	4.39E-01	5.22E-03	lb/hr	A	Yes	No	5.01E-05	4.39E-01	2.19E-04
Nickel	3.00	1.3-10	NM	NM	5.01E-05	4.39E-01	28.1	lb/yr	A	Yes	Yes	5.01E-05	4.39E-01	2.19E-04
Selenium	15.0	1.3-10	NM	NM	2.51E-04	2.19	4.17E-02	lb/hr	A	Yes	Yes	2.51E-04	2.19	1.10E-03

NM – Not Measured

4. **P04, S04: 10.5 Million BTU/hr ABCO Fire-tube Boiler-Installed 1989** All maximum theoretical and potential to emit emissions were supplied by the facility.

P04, S04: Criteria Pollutant Emissions from Natural Gas Combustion

Criteria Pollutant	Emission Factor	AP-42 Table	Actual Emissions		Maximum Theoretical Emissions		Allowable Emissions			Potential to Emit	
	lb/10 ⁶ SCF		lb/yr	ton/yr	lb/hr	ton/yr	lb/mmBTU	lb/hr	ton/yr	lb/hr	ton/yr
Carbon Monoxide	84.0	1.4-1	NM	NM	8.82E-01	3.86	N/A	N/A	N/A	8.82E-01	3.86
Nitrogen Oxide	100	1.4-1	NM	NM	1.05	4.60	N/A	N/A	N/A	1.05	4.60
Particulate Matter	7.60	1.4-2	NM	NM	7.98E-02	3.50E-01	N/A	1.50E-01	6.57E-01	7.98E-02	3.50E-01
Sulfur Dioxide	6.00E-01	1.4-2	NM	NM	6.30E-03	2.76E-02	N/A	N/A	N/A	6.30E-03	2.76E-02
Volatile Organic Compound	5.50	1.4-2	NM	NM	5.78E-02	2.53E-01	N/A	N/A	N/A	5.78E-02	2.53E-01

NM – Not Measured

N/A – Not Applicable-general conditions apply

P04, S04: Hazardous Air Pollutant Emissions Natural Gas Combustion

Hazardous Air Pollutant	Emission Factor	AP-42 Table	Actual Emissions		Maximum Theoretical Emissions		NR 445 Threshold Values (Stacks 25 to < 40 ft)	Units	NR 445 Table	Federal Listed HAP	State Listed HAP	Potential to Emit		
	lb/mmSCF		lb/yr	ton/yr	lb/hr	lb/yr						lb/hr	lb/yr	ton/yr
Arsenic	2.00E-04	1.4-4	NM	NM	2.10E-06	1.84E-02	1.70	lb/yr	A	Yes	Yes	2.10E-06	1.84E-02	9.20E-06
Benzene	2.10E-03	1.4-3	NM	NM	2.21E-05	1.93E-01	936	lb/yr	A	Yes	Yes	2.21E-05	1.93E-01	9.66E-05
Beryllium	1.20E-05	1.4-4	NM	NM	1.26E-07	1.10E-03	14.6	lb/yr	A	Yes	Yes	1.26E-07	1.10E-03	5.52E-07
Cadmium	1.10E-03	1.4-4	NM	NM	1.16E-05	1.01E-01	4.06	lb/yr	A	Yes	Yes	1.16E-05	1.01E-01	5.06E-05
Formaldehyde	7.50E-02	1.4-3	NM	NM	7.88E-04	6.90	562	lb/yr	A	Yes	Yes	7.88E-04	6.90	3.45E-03
Hexane	1.80	1.4-3	NM	NM	1.89E-02	1.66E+02	36.8	lb/hr	A	Yes	Yes	1.89E-02	1.66E+02	8.28E-02
Manganese	3.80E-04	1.4-4	NM	NM	3.99E-06	3.50E-02	4.17E-02	lb/hr	A	Yes	Yes	3.99E-06	3.50E-02	1.75E-05
Mercury aryl and inorganic compounds	2.60E-04	1.4-4	NM	NM	2.73E-06	2.39E-02	5.22E-03	lb/hr	A	Yes	No	2.73E-06	2.39E-02	1.20E-05
Naphthalene	6.10E-04	1.4-3	NM	NM	6.41E-06	5.61E-02	10.9	lb/hr	A	Yes	Yes	6.41E-06	5.61E-02	2.81E-05
Nickel	2.10E-03	1.4-4	NM	NM	2.21E-05	1.93E-01	28.1	lb/yr	A	Yes	Yes	2.21E-05	1.93E-01	9.66E-05
Selenium	2.40E-05	1.4-4	NM	NM	2.52E-07	2.21E-03	4.17E-02	lb/hr	A	Yes	Yes	2.52E-07	2.21E-03	1.10E-06
Toluene	3.40E-03	1.4-3	NM	NM	3.57E-05	3.13E-01	39.3	lb/hr	A	Yes	Yes	3.57E-05	3.13E-01	1.56E-04

NM – Not Measured

P04, S04: Criteria Pollutant Emissions from #2 Fuel Oil Combustion

Criteria Pollutant	Emission Factor	AP-42 Table	Actual Emissions		Maximum Theoretical Emissions		Allowable Emissions			Potential To Emit	
	lb/1,000 gal		lb/yr	ton/yr	lb/hr	ton/yr	lb/mmBTU	lb/hr	ton/yr	lb/hr	ton/yr
Carbon Monoxide	5.00	1.3-1	5.00E-01	2.19	3.75E-01	1.64	N/A	N/A	N/A	3.75E-01	1.64
Nitrogen Oxide	20.0	1.3-1	5.90E-01	2.58	1.50	6.57	N/A	N/A	N/A	1.50	6.57
Particulate Matter	2.00	1.3-1	1.30E-01	5.69E-01	1.50E-01	6.57E-01	N/A	1.50E-01	6.57E-01	1.50E-01	6.57E-01
Sulfur Dioxide	142S	1.3-1	4.79E-03	2.10E-02	5.33E-01	2.33	N/A	N/A	N/A	5.33E-01	2.33
Volatile Organic Compound	2.52E-01	1.3-3	3.00E-02	1.31E-01	1.89E-02	8.28E-02	N/A	N/A	N/A	1.89E-02	8.28E-02

NM – Not Measured

N/A – Not Applicable-general conditions apply

P04, S04: Hazardous Air Pollutant Emissions #2 Fuel Oil Combustion

Hazardous Air Pollutant	Emission Factor	AP-42 Table	Actual Emissions		Maximum Theoretical Emissions		NR 445 Threshold Values (Stacks 25 to < 40 ft)	Units	NR 445 Table	Federal Listed HAP	State Listed HAP	Potential to Emit		
	lb/1,000 gal		lb/yr	ton/yr	lb/hr	lb/yr						lb/hr	lb/yr	ton/yr
Benzene	2.14E-04	1.3-9	NM	NM	1.61E-05	1.41E-01	936	lb/yr	A	Yes	Yes	1.61E-05	1.41E-01	7.03E-05
Ethylbenzene	6.36E-05	1.3-9	NM	NM	4.77E-06	4.18E-02	90.6	lb/hr	A	Yes	Yes	4.77E-06	4.18E-02	2.09E-05
Formaldehyde	6.10E-02	1.3-8	NM	NM	4.58E-03	4.01E+01	562	lb/yr	A	Yes	Yes	4.58E-03	4.01E+01	2.00E-02
Naphthalene	1.13E-03	1.3-9	NM	NM	8.48E-05	7.42E-01	10.9	lb/hr	A	Yes	Yes	8.48E-05	7.42E-01	3.71E-04
Toluene	6.20E-03	1.3-9	NM	NM	4.65E-04	4.07	39.3	lb/hr	A	Yes	Yes	4.65E-04	4.07	2.04E-03

NM – Not Measured

P04, S04: Hazardous Air Pollutant Emissions #2 Fuel Oil Combustion

Hazardous Air Pollutant	Emission Factor	AP-42 Table	Actual Emissions		Maximum Theoretical Emissions		NR 445 Threshold Values (Stacks 25 to < 40 ft)	Units	NR 445 Table	Federal Listed HAP	State Listed HAP	Potential to Emit		
	lb/10 ¹² BTU		lb/yr	ton/yr	lb/hr	lb/yr						lb/hr	lb/yr	ton/yr
Arsenic	4.00	1.3-10	NM	NM	4.20E-05	3.68E-01	1.70	lb/yr	A	Yes	Yes	4.20E-05	3.68E-01	1.84E-04
Beryllium	3.00	1.3-10	NM	NM	3.15E-05	2.76E-01	14.6	lb/yr	A	Yes	Yes	3.15E-05	2.76E-01	1.38E-04
Cadmium	3.00	1.3-10	NM	NM	3.15E-05	2.76E-01	4.06	lb/yr	A	Yes	Yes	3.15E-05	2.76E-01	1.38E-04

Hazardous Air Pollutant	Emission Factor	AP-42 Table	Actual Emissions		Maximum Theoretical Emissions		NR 445 Threshold Values (Stacks 25 to < 40 ft)	Units	NR 445 Table	Federal Listed HAP	State Listed HAP	Potential to Emit		
	lb/10 ¹² BTU		lb/yr	ton/yr	lb/hr	lb/yr						lb/hr	lb/yr	ton/yr
Manganese	6.00	1.3-10	NM	NM	6.30E-05	5.52E-01	4.17E-02	lb/hr	A	Yes	Yes	6.30E-05	5.52E-01	2.76E-04
Mercury aryl and inorganic compounds	3.00	1.3-10	NM	NM	3.15E-05	2.76E-01	5.22E-03	lb/hr	A	Yes	No	3.15E-05	2.76E-01	1.38E-04
Nickel	3.00	1.3-10	NM	NM	3.15E-05	2.76E-01	28.1	lb/yr	A	Yes	Yes	3.15E-05	2.76E-01	1.38E-04
Selenium	15.0	1.3-10	NM	NM	1.58E-04	1.38	4.17E-02	lb/hr	A	Yes	Yes	1.58E-04	1.38	6.90E-04

NM – Not Measured

5. **P05, S05: 10.5 Million BTU/hr ABCO Fire-tube Boiler-Installed 1989** All maximum theoretical and potential to emit emissions were supplied by the facility.

P05, S05: Criteria Pollutant Emissions from Natural Gas Combustion

Criteria Pollutant	Emission Factor	AP-42 Table	Actual Emissions		Maximum Theoretical Emissions		Allowable Emissions			Potential to Emit	
	lb/10 ⁶ SCF		lb/yr	ton/yr	lb/hr	ton/yr	lb/mmBTU	lb/hr	ton/yr	lb/hr	ton/yr
Carbon Monoxide	84.0	1.4-1	NM	NM	8.82E-01	3.86	N/A	N/A	N/A	8.82E-01	3.86
Nitrogen Oxide	100	1.4-1	NM	NM	1.05	4.60	N/A	N/A	N/A	1.05	4.60
Particulate Matter	7.60	1.4-2	NM	NM	7.98E-02	3.50E-01	N/A	1.50E-01	6.57E-01	7.98E-02	3.50E-01
Sulfur Dioxide	6.00E-01	1.4-2	NM	NM	6.30E-03	2.76E-02	N/A	N/A	N/A	6.30E-03	2.76E-02
Volatile Organic Compound	5.50	1.4-2	NM	NM	5.78E-02	2.53E-01	N/A	N/A	N/A	5.78E-02	2.53E-01

NM – Not Measured

N/A – Not Applicable-general conditions apply

P05, S05: Hazardous Air Pollutant Emissions Natural Gas Combustion

Hazardous Air Pollutant	Emission Factor	AP-42 Table	Actual Emissions		Maximum Theoretical Emissions		NR 445 Threshold Values (Stacks 25 to < 40 ft)	Units	NR 445 Table	Federal Listed HAP	State Listed HAP	Potential to Emit		
	lb/mmSCF		lb/yr	ton/yr	lb/hr	lb/yr						lb/hr	lb/yr	ton/yr
Arsenic	2.00E-04	1.4-4	NM	NM	2.10E-06	1.84E-02	1.70	lb/yr	A	Yes	Yes	2.10E-06	1.84E-02	9.20E-06
Benzene	2.10E-03	1.4-3	NM	NM	2.21E-05	1.93E-01	936	lb/yr	A	Yes	Yes	2.21E-05	1.93E-01	9.66E-05
Beryllium	1.20E-05	1.4-4	NM	NM	1.26E-07	1.10E-03	14.6	lb/yr	A	Yes	Yes	1.26E-07	1.10E-03	5.52E-07

Hazardous Air Pollutant	Emission Factor	AP-42 Table	Actual Emissions		Maximum Theoretical Emissions		NR 445 Threshold Values (Stacks 25 to < 40 ft)	Units	NR 445 Table	Federal Listed HAP	State Listed HAP	Potential to Emit		
	lb/mmSCF		lb/yr	ton/yr	lb/hr	lb/yr						lb/hr	lb/yr	ton/yr
Cadmium	1.10E-03	1.4-4	NM	NM	1.16E-05	1.01E-01	4.06	lb/yr	A	Yes	Yes	1.16E-05	1.01E-01	5.06E-05
Formaldehyde	7.50E-02	1.4-3	NM	NM	7.88E-04	6.90	562	lb/yr	A	Yes	Yes	7.88E-04	6.90	3.45E-03
Hexane	1.80	1.4-3	NM	NM	1.89E-02	1.66E+02	36.8	lb/hr	A	Yes	Yes	1.89E-02	1.66E+02	8.28E-02
Manganese	3.80E-04	1.4-4	NM	NM	3.99E-06	3.50E-02	4.17E-02	lb/hr	A	Yes	Yes	3.99E-06	3.50E-02	1.75E-05
Mercury aryl and inorganic compounds	2.60E-04	1.4-4	NM	NM	2.73E-06	2.39E-02	5.22E-03	lb/hr	A	Yes	No	2.73E-06	2.39E-02	1.20E-05
Naphthalene	6.10E-04	1.4-3	NM	NM	6.41E-06	5.61E-02	10.9	lb/hr	A	Yes	Yes	6.41E-06	5.61E-02	2.81E-05
Nickel	2.10E-03	1.4-4	NM	NM	2.21E-05	1.93E-01	28.1	lb/yr	A	Yes	Yes	2.21E-05	1.93E-01	9.66E-05
Selenium	2.40E-05	1.4-4	NM	NM	2.52E-07	2.21E-03	4.17E-02	lb/hr	A	Yes	Yes	2.52E-07	2.21E-03	1.10E-06
Toluene	3.40E-03	1.4-3	NM	NM	3.57E-05	3.13E-01	39.3	lb/hr	A	Yes	Yes	3.57E-05	3.13E-01	1.56E-04

NM – Not Measured

P05, S05: Criteria Pollutant Emissions from #2 Fuel Oil Combustion

Criteria Pollutant	Emission Factor	AP-42 Table	Actual Emissions		Maximum Theoretical Emissions		Allowable Emissions			Potential To Emit	
	lb/1,000 gal		lb/yr	ton/yr	lb/hr	ton/yr	lb/mmBTU	lb/hr	ton/yr	lb/hr	ton/yr
Carbon Monoxide	5.00	1.3-1	5.00E-01	2.19	3.75E-01	1.64	N/A	N/A	N/A	3.75E-01	1.64
Nitrogen Oxide	20.0	1.3-1	5.90E-01	2.58	1.50	6.57	N/A	N/A	N/A	1.50	6.57
Particulate Matter	2.00	1.3-1	1.30E-01	5.69E-01	1.50E-01	6.57E-01	N/A	1.50E-01	6.57E-01	1.50E-01	6.57E-01
Sulfur Dioxide	142S	1.3-1	4.79E-03	2.10E-02	5.33E-01	2.33	N/A	N/A	N/A	5.33E-01	2.33
Volatile Organic Compound	2.52E-01	1.3-3	3.00E-02	1.31E-01	1.89E-02	8.28E-02	N/A	N/A	N/A	1.89E-02	8.28E-02

NM – Not Measured

N/A – Not Applicable-general conditions apply

P05, S05: Hazardous Air Pollutant Emissions #2 Fuel Oil Combustion

Hazardous Air Pollutant	Emission Factor	AP-42 Table	Actual Emissions		Maximum Theoretical Emissions		NR 445 Threshold Values (Stacks 25 to < 40 ft)	Units	NR 445 Table	Federal Listed HAP	State Listed HAP	Potential to Emit		
	lb/1,000 gal		lb/yr	ton/yr	lb/hr	lb/yr						lb/hr	lb/yr	ton/yr

Hazardous Air Pollutant	Emission Factor	AP-42 Table	Actual Emissions		Maximum Theoretical Emissions		NR 445 Threshold Values (Stacks 25 to < 40 ft)	Units	NR 445 Table	Federal Listed HAP	State Listed HAP	Potential to Emit		
	lb/1,000 gal		lb/yr	ton/yr	lb/hr	lb/yr						lb/hr	lb/yr	ton/yr
Benzene	2.14E-04	1.3-9	NM	NM	1.61E-05	1.41E-01	936	lb/yr	A	Yes	Yes	1.61E-05	1.41E-01	7.03E-05
Ethylbenzene	6.36E-05	1.3-9	NM	NM	4.77E-06	4.18E-02	90.6	lb/hr	A	Yes	Yes	4.77E-06	4.18E-02	2.09E-05
Formaldehyde	6.10E-02	1.3-8	NM	NM	4.58E-03	4.01E+01	562	lb/yr	A	Yes	Yes	4.58E-03	4.01E+01	2.00E-02
Naphthalene	1.13E-03	1.3-9	NM	NM	8.48E-05	7.42E-01	10.9	lb/hr	A	Yes	Yes	8.48E-05	7.42E-01	3.71E-04
Toluene	6.20E-03	1.3-9	NM	NM	4.65E-04	4.07	39.3	lb/hr	A	Yes	Yes	4.65E-04	4.07	2.04E-03

NM – Not Measured

P05, S05: Hazardous Air Pollutant Emissions #2 Fuel Oil Combustion

Hazardous Air Pollutant	Emission Factor	AP-42 Table	Actual Emissions		Maximum Theoretical Emissions		NR 445 Threshold Values (Stacks 25 to < 40 ft)	Units	NR 445 Table	Federal Listed HAP	State Listed HAP	Potential to Emit		
	lb/10 ¹² BTU		lb/yr	ton/yr	lb/hr	lb/yr						lb/hr	lb/yr	ton/yr
Arsenic	4.00	1.3-10	NM	NM	4.20E-05	3.68E-01	1.70	lb/yr	A	Yes	Yes	4.20E-05	3.68E-01	1.84E-04
Beryllium	3.00	1.3-10	NM	NM	3.15E-05	2.76E-01	14.6	lb/yr	A	Yes	Yes	3.15E-05	2.76E-01	1.38E-04
Cadmium	3.00	1.3-10	NM	NM	3.15E-05	2.76E-01	4.06	lb/yr	A	Yes	Yes	3.15E-05	2.76E-01	1.38E-04
Manganese	6.00	1.3-10	NM	NM	6.30E-05	5.52E-01	4.17E-02	lb/hr	A	Yes	Yes	6.30E-05	5.52E-01	2.76E-04
Mercury aryl and inorganic compounds	3.00	1.3-10	NM	NM	3.15E-05	2.76E-01	5.22E-03	lb/hr	A	Yes	No	3.15E-05	2.76E-01	1.38E-04
Nickel	3.00	1.3-10	NM	NM	3.15E-05	2.76E-01	28.1	lb/yr	A	Yes	Yes	3.15E-05	2.76E-01	1.38E-04
Selenium	15.0	1.3-10	NM	NM	1.58E-04	1.38	4.17E-02	lb/hr	A	Yes	Yes	1.58E-04	1.38	6.90E-04

NM – Not Measured

6. **P06, S06, S36: MRC 5-Installed 2003** All maximum theoretical and potential to emit emissions were supplied by the facility.

Criteria Pollutant Emissions From Stack S06-Vents Emissions from the Coater

Pollutant	Actual Emissions		Maximum Theoretical Emissions		Allowable Emissions		Potential To Emit	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Volatile Organic Compound	0	0	1.82	7.98	56.8	249	1.82	7.98

Criteria Pollutants From Stack S36

Stack S36 vents emissions from the oven for process P06. Emissions from stack S36 are negligible.

7. **P07, S07, S22, S24, S49: Tape Coating-Installed 1983** All maximum theoretical and potential to emit emissions were supplied by the facility.

Criteria Pollutants and Hazardous Air Pollutants Emitted From Stack S07

Stack S07 vents emissions from the pre-coater. Emissions from stack S07 are negligible.

Criteria Pollutants Emitted From Stack S22-Emissions from the Pre-Coat Oven

Pollutant	Actual Emissions		Maximum Theoretical Emissions		Allowable Emissions		Potential To Emit	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Volatile Organic Compound (MEK)	10.5	46.1	56.8	249	56.8	249	11.4	50.0

Hazardous Air Pollutants Emitted From Stack S22-Emissions from the Pre-Coat Oven

Pollutant	CAS Number	Actual Emissions		Maximum Theoretical Emissions		NR 445 Threshold Values (Stacks 40 to < 75 ft)	Units	NR 445 Table	Federal Listed HAP	State Listed HAP	Potential To Emit		
		lb/hr	ton/yr	lb/hr	lb/yr						lb/hr	lb/yr	ton/yr
Toluene	108-88-3	9.06	39.7	41.6	3.64E+05	79.3	lb/hr	A	Yes	Yes	41.6	3.64E+05	182

Hazardous Air Pollutants Emitted From Stack S22-Emissions from the Pre-Coat Oven

Pollutant	CAS Number	Actual Emissions		Maximum Theoretical Emissions		Reference Concentration (Stacks > 25 ft)	Units	NR 445 Table	Federal Listed HAP	State Listed HAP	Potential To Emit		
		lb/hr	ton/yr	lb/hr	lb/yr						lb/hr	lb/yr	ton/yr
Methyl Ethyl Ketone (MEK)	78-93-3	8.80E-01	3.85	56.8	4.98E+05	625	lb/hr	W	Yes	No	56.8	4.98E+05	249

W-Watch List Pollutant

Criteria Pollutants and Hazardous Air Pollutants Emitted From Stack S24

Stack S24 vents emissions from the post-coater. Emissions from stack S24 are negligible.

Criteria Pollutants Emitted From Stack S49-Emissions from the Post-Coat Oven

Pollutant	Actual Emissions	Maximum Theoretical Emissions	Allowable Emissions	Potential To Emit
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	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Volatile Organic Compound (MEK)	10.5	46.1	56.8	249	56.8	249	11.4	50.0

Hazardous Air Pollutants Emitted From Stack S49-Emissions from the Post-Coat Oven

Pollutant	CAS Number	Actual Emissions		Maximum Theoretical Emissions		NR 445 Threshold Values (Stacks 40 to < 75 ft)	Units	NR 445 Table	Federal Listed HAP	State Listed HAP	Potential To Emit		
		lb/hr	ton/yr	lb/hr	lb/yr						lb/hr	lb/yr	ton/yr
Toluene	108-88-3	9.06	39.7	41.6	3.64E+05	79.3	lb/hr	A	Yes	Yes	41.6	3.64E+05	182

Hazardous Air Pollutants Emitted From Stack S49-Emissions from the Post-Coat Oven

Pollutant	CAS Number	Actual Emissions		Maximum Theoretical Emissions		Reference Concentration (Stacks > 25 ft)	Units	NR 445 Table	Federal Listed HAP	State Listed HAP	Potential To Emit		
		lb/hr	ton/yr	lb/hr	lb/yr						lb/hr	lb/yr	ton/yr
Methyl Ethyl Ketone (MEK)	78-93-3	8.80E-01	3.85	5.68E+01	4.98E+05	625	lb/hr	W	Yes	No	56.8	4.98E+05	249

W-Watch List Pollutant

8. **P08, S08, S34, S35, C03, C04: Chrome Plating Process #2-Installed 2003** All maximum theoretical and potential to emit emissions were supplied by the facility.

Hazardous Air Pollutant Emissions From Stack S08

Pollutant	CAS Number	Actual Emissions		Maximum Theoretical Emissions		NR 445 Threshold Values (Stacks < 25 ft)	Units	NR 445 Table	Federal Listed HAP	State Listed HAP	Potential To Emit		
		lb/hr	ton/yr	lb/hr	lb/yr						lb/hr	lb/yr	ton/yr
Chromium (VI) compounds, as Cr, water soluble	7440-47-3	9.60E-06	4.20E-05	8.60E-04	7.53	2.69E-02	lb/hr	A	No	Yes	4.40E-04	3.85	1.93E-03
Sulfuric Acid	7664-93-9	5.50E-06	2.41E-05	5.50E-06	4.82E-02	5.37E-02	lb/hr	A	No	Yes	5.50E-06	4.82E-02	2.41E-05

Criteria Pollutant Emissions From Stack S34

Pollutant	Actual Emissions		Maximum Theoretical Emissions		Allowable Emissions		Potential To Emit	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Particulate Matter	1.00E-02	4.38E-02	1.00E-02	4.38E-02	3.30E-01	1.45	1.00E-02	4.38E-02

Criteria Pollutant Emissions From Stack S34

Pollutant	Actual Emissions		Maximum Theoretical Emissions		Allowable Emissions		Potential To Emit	
	lb/day	ton/yr	lb/day	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Volatile Organic Compound	23.4	3.04	58.6	10.7	56.8	249	1.14	5.00

Criteria Pollutant Emissions From Stack S35

Pollutant	Actual Emissions		Maximum Theoretical Emissions		Allowable Emissions		Potential To Emit	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Particulate Matter	4.00E-02	1.75E-01	5.50E-02	2.41E-01	3.30E-01	1.45	5.50E-02	2.41E-01
Volatile Organic Compound	0	0	2.60E-03	1.14E-02	56.8	249	2.60E-03	1.14E-02

Hazardous Air Pollutant Emissions From Stack S35

Pollutant	CAS Number	Actual Emissions		Maximum Theoretical Emissions		NR 445 Threshold Values (Stacks 25 to < 40 ft)	Units	NR 445 Table	Federal Listed HAP	State Listed HAP	Potential To Emit		
		lb/hr	ton/yr	lb/hr	lb/yr						lb/hr	lb/yr	ton/yr
Acetaldehyde	75-07-0	5.30E-04	2.32E-03	4.40E-04	3.85	10.7	lb/hr	A & W	Yes	Yes	4.40E-04	3.85	1.93E-03
Vinyl Acetate	108-05-4	2.60E-03	1.14E-02	2.20E-03	1.93E+01	7.35	lb/hr	A	Yes	Yes	2.20E-03	1.93E+01	9.64E-03

9. **P09, S09, C01: Automated Spray Coating Line-Installed 1996** All maximum theoretical and potential to emit emissions were supplied by the facility.

Criteria Pollutant Emissions From Stack S09

Pollutant	Actual Emissions		Maximum Theoretical Emissions		Allowable Emissions		Potential To Emit	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Particulate Matter	0	0	3.20E-01	1.40	3.20E-01	1.40	3.20E-01	1.40

Criteria Pollutant Emissions From Stack S09

Pollutant	Actual Emissions		Maximum Theoretical Emissions		Allowable Emissions			Potential To Emit		
	lb/hr	ton/yr	lb/hr	ton/yr	lb/month	lb/hr	ton/yr	lb/month	lb/hr	ton/yr

Pollutant	Actual Emissions		Maximum Theoretical Emissions		Allowable Emissions			Potential To Emit		
	lb/hr	ton/yr	lb/hr	ton/yr	lb/month	lb/hr	ton/yr	lb/month	lb/hr	ton/yr
Volatile Organic Compound (MEK)	0	0	5.02E-02	2.20E-01	2337	3.20	14.0	3.20	14.0	2337
Volatile Organic Compound (MIBK)	0	0	56.8	4.98E+05	2337	3.20	14.0	3.20	14.0	2337
Total			56.9	4.98E+05	2337	3.20	14.0	3.20	14.0	2337

Hazardous Air Pollutant Emissions From Stack S09

Pollutant	CAS Number	Actual Emissions		Maximum Theoretical Emissions		NR 445 Threshold Values (Stacks 25 to < 40 ft)	Units	NR 445 Table	Federal Listed HAP	State Listed HAP	Potential To Emit		
		lb/hr	ton/yr	lb/hr	lb/yr						lb/hr	lb/yr	ton/yr
Toluene	108-88-3	789	3.46E+03	41.6	3.64E+05	39.3	lb/hr	A	Yes	Yes	39.3	3.44E+05	172
Methyl Isobutyl Ketone (MIBK)	108-10-1	0	0	56.8	4.98E+05	42.7	lb/hr	A	Yes	Yes	3.20	2.80E+04	14.0

Hazardous Air Pollutant Emissions From Stack S09

Pollutant	CAS Number	Actual Emissions		Maximum Theoretical Emissions		Reference Concentration (Stacks > 25 ft)	Units	NR 445 Table	Federal Listed HAP	State Listed HAP	Potential To Emit		
		lb/hr	ton/yr	lb/hr	lb/yr						lb/hr	lb/yr	ton/yr
Methyl Ethyl Ketone (MEK)	78-93-3	0	0	5.02E-02	440	625	lb/hr	W	Yes	No	5.02E-02	440	2.20E-01

Note: 2337 lb/month (3.2 lb/hr) is not listed as the PTE for MEK because the MTE is less than the NR 445 threshold values. Listing 2337 lb/month (3.2 lb/hr) as the PTE would be an incorrect emission rate because the MTE is only 0.0502 lb/hr. The PTE should not exceed the MTE in this situation.

W-Watch List Pollutant

10. **P10, S10, S20: MRC-1 Coating Line-Last Modified 2000** All maximum theoretical and potential to emit emissions were supplied by the facility.

Criteria Pollutant Emissions From Stack S10-Vents Emissions from the Coater

Pollutant	Actual Emissions		Maximum Theoretical Emissions		Allowable Emissions			Potential To Emit		
	lb/hr	ton/yr	lb/hr	ton/yr	lb/month	lb/hr	ton/yr	lb/month	lb/hr	ton/yr

Pollutant	Actual Emissions		Maximum Theoretical Emissions		Allowable Emissions			Potential To Emit		
	lb/hr	ton/yr	lb/hr	ton/yr	lb/month	lb/hr	ton/yr	lb/month	lb/hr	ton/yr
Volatile Organic Compound	8.30E-01	3.64	3.91	17.1	6.65E+03	9.11	39.9	1.33E+03	1.82	7.98

Criteria Pollutant Emissions From Stack S20

Stack S20 vents emissions from the oven for process P10. Emissions from stack S20 are negligible.

11. **P11, S11, S21: MRC-2 Coating Line-Last Modified 2000** All maximum theoretical and potential to emit emissions were supplied by the facility.

Criteria Pollutant Emissions From Stack S11-Vents Emissions from the Coater

Pollutant	Actual Emissions		Maximum Theoretical Emissions		Allowable Emissions			Potential To Emit		
	lb/hr	ton/yr	lb/hr	ton/yr	lb/month	lb/hr	ton/yr	lb/month	lb/hr	ton/yr
Volatile Organic Compound	8.30E-01	3.64	3.91	39.9	6.65E+03	9.11	39.9	6.65E+03	9.11	39.9

Criteria Pollutant Emissions From Stack S21

Stack S21 vents emissions from the oven for process P11. Emissions from stack S21 are negligible.

12. **P12, S12: MRC-3 Coating Line-Last Modified 2000** All maximum theoretical and potential to emit emissions were supplied by the facility.

Criteria Pollutant Emissions From Stack S12-Vents Emissions from the Coater and Oven

Pollutant	Actual Emissions		Maximum Theoretical Emissions		Allowable Emissions			Potential To Emit		
	lb/hr	ton/yr	lb/hr	ton/yr	lb/month	lb/hr	ton/yr	lb/month	lb/hr	ton/yr
Volatile Organic Compound	8.30E-01	3.64	3.91	39.9	6.65E+03	9.11	39.9	1.33E+03	1.82	7.98

13. **P13, S13, S23: MRC-4 Coating Line-Last Modified 2000** All maximum theoretical and potential to emit emissions were supplied by the facility.

Criteria Pollutant Emissions From Stack S13-Vents Emissions from the Coater

Pollutant	Actual Emissions		Maximum Theoretical Emissions		Allowable Emissions			Potential To Emit		
	lb/hr	ton/yr	lb/hr	ton/yr	lb/month	lb/hr	ton/yr	lb/month	lb/hr	ton/yr
Volatile Organic Compound	8.30E-01	3.64	3.91	39.9	6.65E+03	9.11	39.9	1.33E+03	1.82	7.98

Criteria Pollutant Emissions From Stack S23

Stack S23 vents emissions from the oven for process P13. Emissions from stack S23 are negligible.

14. **P14, S14, C02: Chrome Plating Process-Installed 1996** All maximum theoretical and potential to emit emissions were supplied by the facility.

Criteria Pollutant Emissions From Stack S14

Pollutant	Actual Emissions		Maximum Theoretical Emissions		Allowable Emissions		Potential To Emit	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Particulate Matter	NM	NM	5.80E-01	2.54	5.80E-01	2.54	5.80E-01	2.54
Volatile Organic Compound	NM	NM	2.74	12.0	56.8	249	6.26E-01	2.74

NW-Not Measured

Hazardous Air Pollutant Emissions From Stack S14

Pollutant	CAS Number	Actual Emissions		Maximum Theoretical Emissions		NR 445 Threshold Values (Stacks 25 to < 40 ft)	Units	NR 445 Table	Federal Listed HAP	State Listed HAP	Potential To Emit		
		lb/hr	ton/yr	lb/hr	lb/yr						lb/hr	lb/yr	ton/yr
Chromium (VI) compounds, as Cr, water soluble	7440-47-3	0	0	7.00E-06	3.07E-05	1.04E-01	lb/hr	A	No	Yes	1.90E-03	7.00E-06	3.07E-05

15. **P15, S15, S25, S43, S44, S45, C05: CF1 Ceramic Fiber Making Process-Last Modified 2004** All maximum theoretical and potential to emit emissions were supplied by the facility.

Criteria Pollutant Emissions From Stack S15

Pollutant	Actual Emissions		Maximum Theoretical Emissions		Allowable Emissions			Potential To Emit		
	lb/hr	ton/yr	lb/hr	ton/yr	lb/month	lb/hr	ton/yr	lb/month	lb/hr	ton/yr

Pollutant	Actual Emissions		Maximum Theoretical Emissions		Allowable Emissions			Potential To Emit		
	lb/hr	ton/yr	lb/hr	ton/yr	lb/month	lb/hr	ton/yr	lb/month	lb/hr	ton/yr
Carbon Monoxide	0	0	1.64	7.18	N/A	N/A	N/A	1.20E+03	1.64	7.18
Nitrogen Oxide	0	0	1.34E-01	5.89E-01	N/A	N/A	N/A	9.81E+01	1.34E-01	5.89E-01
Volatile Organic Compound	0	0	2.12	9.27	1.35E+04	18.5	81.0	1.54E+03	2.12	9.27

N/A - Not Applicable-general conditions apply

Criteria Pollutant Emissions From Stack S25

According to the facility, emissions from stack S25 consist of small amounts of carbon monoxide and nitrogen oxide and HAPs from process P15. Emissions from stack S25 are routed to the thermal oxidizer and vented through stack S43.

Criteria Pollutant Emissions From Stack S43

Stack S43 vents emissions from the thermal oxidizer C05. See emissions from stack S43 under the Facility Emissions Summary section.

Criteria Pollutant Emissions From Stack S44

Stack S44 vents emissions from the new spinroom. Emissions from stack S44 are negligible.

Criteria Pollutant Emissions From Stack S45

Stack S45 is an emergency by-pass stack only.

P15, P16, P17, P18, P19, and P22 Total Hazardous Air Pollutant Emissions

Pollutant	CAS Number	Actual Emissions		Maximum Theoretical Emissions		NR 445 Threshold Values (Stacks > 25 ft)	Units	NR 445 Table	Federal Listed HAP	State Listed HAP	Potential To Emit		
		lb/hr	ton/yr	lb/hr	lb/yr						lb/hr	lb/yr	ton/yr
Acetaldehyde	75-07-0	1.00E-01	4.38E-01	3.20	2.80E+04	10.7	lb/hr	A	Yes	Yes	3.20	2.80E+04	14.0
Acetic Acid	64-19-7	1.10E-01	4.82E-01	1.30	1.14E+04	5.12	lb/hr	A	No	Yes	1.30	1.14E+04	5.69
Ammonia	7664-41-7	1.00E-02	4.38E-02	4.08E-01	3.57E+03	3.63	lb/hr	A	No	Yes	4.08E-01	3.57E+03	1.79
Formaldehyde	50-00-0	2.00E-02	8.76E-02	2.27E-01	1.99E+03	562	lb/yr	A	Yes	Yes	2.27E-01	1.99E+03	9.94E-01
Hydrogen Cyanide	74-90-8	3.00E-02	1.31E-01	2.02E-01	1.77E+03	1.24	lb/hr	A	No	Yes	2.02E-01	1.77E+03	8.83E-01
N,N-Dimethylformamide	68-12-2	8.00E-02	3.50E-01	3.60E-01	3.15E+03	6.24	lb/hr	A	Yes	Yes	3.60E-01	3.15E+03	1.58

W – Watchlist Pollutant

16. **P16, S16, S26, S43, S44, S46, C05: CF2 Ceramic Fiber Making Process-Last Modified 2004** All maximum theoretical and potential to emit emissions were supplied by the facility.

Criteria Pollutant Emissions From Stack S16

Pollutant	Actual Emissions		Maximum Theoretical Emissions		Allowable Emissions			Potential To Emit		
	lb/hr	ton/yr	lb/hr	ton/yr	lb/month	lb/hr	ton/yr	lb/month	lb/hr	ton/yr
Carbon Monoxide	0	0	1.64	7.18	N/A	N/A	N/A	1.20E+03	1.64	7.18
Nitrogen Oxide	0	0	1.34E-01	5.89E-01	N/A	N/A	N/A	9.81E+01	1.34E-01	5.89E-01
Volatile Organic Compound	0	0	2.12	9.27	1.35E+04	18.5	81.0	1.54E+03	2.12	9.27

N/A - Not Applicable-general conditions apply

Criteria Pollutant Emissions From Stack S26

According to the facility, emissions from stack S26 consist of small amounts of carbon monoxide and nitrogen oxide and HAPs from process P16. Emissions from stack S26 are routed to the thermal oxidizer and vented through stack S43.

Criteria Pollutant Emissions From Stack S43

Stack S43 vents emissions from the thermal oxidizer C05. See emissions from stack S43 under the Facility Emissions Summary section.

Criteria Pollutant Emissions From Stack S44

Stack S44 vents emissions from the new spinroom. Emissions from stack S44 are negligible.

Criteria Pollutant Emissions From Stack S46

Stack S46 is an emergency by-pass stack only.

17. **P17, S17, S27, S30: CF3 Ceramic Fiber Making Process-Last Modified 2004** All maximum theoretical and potential to emit emissions were supplied by the facility.

Criteria Pollutant Emissions From Stack S17

Pollutant	Actual Emissions		Maximum Theoretical Emissions		Allowable Emissions			Potential To Emit		
	lb/hr	ton/yr	lb/hr	ton/yr	lb/month	lb/hr	ton/yr	lb/month	lb/hr	ton/yr
Carbon Monoxide	0	0	4.35E-02	1.91E-01	N/A	N/A	N/A	3.18E+01	4.35E-02	1.91E-01
Nitrogen Oxide	0	0	8.96E-02	3.92E-01	N/A	N/A	N/A	6.54E+01	8.96E-02	3.92E-01
Volatile Organic Compound	0	0	8.70E-01	3.81	1.35E+04	18.5	81.0	6.35E+02	8.70E-01	3.81

N/A - Not Applicable-general conditions apply

Criteria Pollutant Emissions From Stack S27

Pollutant	Actual Emissions		Maximum Theoretical Emissions		Allowable Emissions			Potential To Emit		
	lb/hr	ton/yr	lb/hr	ton/yr	lb/month	lb/hr	ton/yr	lb/month	lb/hr	ton/yr
Carbon Monoxide	0	0	6.53E-02	2.86E-01	N/A	N/A	N/A	4.77E+01	6.53E-02	2.86E-01
Nitrogen Oxide	0	0	1.34E-01	5.89E-01	N/A	N/A	N/A	9.81E+01	1.34E-01	5.89E-01
Volatile Organic Compound	0	0	1.31	5.72	1.35E+04	18.5	81.0	9.53E+02	1.31	5.72

N/A - Not Applicable-general conditions apply

Criteria Pollutant Emissions From Stack S30

Stack S30 vents emissions from the new spinroom. Emissions from stack S30 are negligible.

18. **P18, S18, S28: CF4 Ceramic Fiber Making Process-Last Modified 2004** All maximum theoretical and potential to emit emissions were supplied by the facility.

Criteria Pollutant Emissions From Stack S18

Pollutant	Actual Emissions		Maximum Theoretical Emissions		Allowable Emissions			Potential To Emit		
	lb/hr	ton/yr	lb/hr	ton/yr	lb/month	lb/hr	ton/yr	lb/month	lb/hr	ton/yr
Carbon Monoxide	0	0	2.18E-02	9.53E-02	N/A	N/A	N/A	1.59E+01	2.18E-02	9.53E-02
Nitrogen Oxide	0	0	4.48E-02	1.96E-01	N/A	N/A	N/A	3.27E+01	4.48E-02	1.96E-01
Volatile Organic Compound	0	0	4.35E-01	1.91	1.35E+04	18.5	81.0	3.18E+02	4.35E-01	1.91

N/A - Not Applicable-general conditions apply

Criteria Pollutant Emissions From Stack S28

Pollutant	Actual Emissions		Maximum Theoretical Emissions		Allowable Emissions			Potential To Emit		
	lb/hr	ton/yr	lb/hr	ton/yr	lb/month	lb/hr	ton/yr	lb/month	lb/hr	ton/yr
Carbon Monoxide	0	0	3.26E-02	1.43E-01	N/A	N/A	N/A	2.38E+01	3.26E-02	1.43E-01
Nitrogen Oxide	0	0	6.72E-02	2.94E-01	N/A	N/A	N/A	4.91E+01	6.72E-02	2.94E-01
Volatile Organic Compound	0	0	6.53E-01	2.86	1.35E+04	18.5	81.0	4.77E+02	6.53E-01	2.86

N/A - Not Applicable-general conditions apply

19. **P19, S19, S29, S30, S43, S47, C05: CF5 Ceramic Fiber Making Process-Last Modified 2004**

Criteria Pollutant Emissions From Stack S19

Pollutant	Actual Emissions		Maximum Theoretical Emissions		Allowable Emissions			Potential To Emit		
	lb/hr	ton/yr	lb/hr	ton/yr	lb/month	lb/hr	ton/yr	lb/month	lb/hr	ton/yr
Carbon Monoxide	0	0	1.64	7.18	N/A	N/A	N/A	1.20E+03	1.64	7.18
Nitrogen Oxide	0	0	1.34E-01	5.89E-01	N/A	N/A	N/A	2.80E+01	3.84E-02	1.68E-01
Volatile Organic Compound	0	0	2.12	9.27	1.35E+04	18.5	81.0	1.54E+03	2.12	9.27

N/A - Not Applicable-general conditions apply

Criteria Pollutant Emissions From Stack S29

According to the facility, emissions from stack S29 consist of small amounts of carbon monoxide and nitrogen oxide and HAPs from process P19. Emissions from stack S29 are routed to the thermal oxidizer and vented through stack S43.

Criteria Pollutant Emissions From Stack S30

Stack S30 vents emissions from the new spinroom. Emissions from stack S30 are negligible.

Criteria Pollutant Emissions From Stack S43

Stack S43 vents emissions from the thermal oxidizer C05. See emissions from stack S43 under the Facility Emissions Summary section.

Criteria Pollutant Emissions From Stack S47

Stack S47 is an emergency by-pass stack only.

20. **P20, S31, S32, S33: Gamma Line-Installed 2003** All maximum theoretical and potential to emit emissions were supplied by the facility.

Criteria Pollutant Emissions From Stack S31

Pollutant	Actual Emissions		Maximum Theoretical Emissions		Allowable Emissions		Potential To Emit	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Carbon Monoxide	0	0	6.00E-02	2.63E-01	N/A	N/A	6.00E-02	2.63E-01
Nitrogen Oxide	0	0	7.14E-02	3.13E-01	N/A	N/A	7.14E-02	3.13E-01
Particulate Matter	0	0	5.40E-03	2.37E-02	N/A	N/A	5.40E-03	2.37E-02
Sulfur Dioxide	0	0	4.00E-04	1.75E-03	N/A	N/A	4.00E-04	1.75E-03
Volatile Organic Compound	0	0	3.90E-03	1.71E-02	56.8	249	3.90E-03	1.71E-02

N/A - Not Applicable-general conditions apply

Criteria Pollutant Emissions From Stack S32

Pollutant	Actual Emissions		Maximum Theoretical Emissions		Allowable Emissions		Potential To Emit	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Carbon Monoxide	0	0	6.00E-02	2.63E-01	N/A	N/A	6.00E-02	2.63E-01
Nitrogen Oxide	0	0	7.14E-02	3.13E-01	N/A	N/A	7.14E-02	3.13E-01
Particulate Matter	0	0	5.40E-03	2.37E-02	N/A	N/A	5.40E-03	2.37E-02
Sulfur Dioxide	0	0	4.00E-04	1.75E-03	N/A	N/A	4.00E-04	1.75E-03
Volatile Organic Compound	0	0	3.90E-03	1.71E-02	56.8	249	3.90E-03	1.71E-02

N/A - Not Applicable-general conditions apply

Criteria Pollutant Emissions From Stack S33

Pollutant	Actual Emissions		Maximum Theoretical Emissions		Allowable Emissions		Potential To Emit	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Volatile Organic Compound	0	0	2.28	10.0	56.8	249	2.28	10.0

Hazardous Air Pollutant Emissions From the Gamma Line Process P20-resulting from the combustion of natural gas

Pollutant	CAS Number	Actual Emissions		Maximum Theoretical Emissions		NR 445 Threshold Values (Stacks 25 to < 40 ft)	Units	NR 445 Table	Federal Listed HAP	State Listed HAP	Potential To Emit		
		lb/hr	ton/yr	lb/hr	lb/yr						lb/hr	lb/yr	ton/yr
Arsenic	7440-38-2	NM	NM	5.00E-07	4.38E-03	1.70	lb/yr	A	Yes	Yes	5.00E-07	4.38E-03	2.19E-06
Barium	7440-39-3	NM	NM	1.10E-05	9.64E-02	1.04E-01	lb/hr	A	No	Yes	1.10E-05	9.64E-02	4.82E-05
Benz(a)anthracene	56-55-3	NM	NM	4.50E-09	3.94E-05	66.4	lb/yr	A	No	Yes	4.50E-09	3.94E-05	1.97E-08
Benzene	71-43-2	NM	NM	5.25E-06	4.60E-02	936	lb/yr	A	Yes	Yes	5.25E-06	4.60E-02	2.30E-05
Benzo(a)pyrene	50-32-8	NM	NM	3.00E-09	2.63E-05	6.64	lb/yr	A	No	Yes	3.00E-09	2.63E-05	1.31E-08
Benzo(b)fluoranthene	205-99-2	NM	NM	4.50E-09	3.94E-05	10.0	lb/yr	A	No	Yes	4.50E-09	3.94E-05	1.97E-08
Beryllium	7440-41-7	NM	NM	3.00E-08	2.63E-04	14.6	lb/yr	A	Yes	Yes	3.00E-08	2.63E-04	1.31E-07
Cadmium	7440-43-9	NM	NM	2.75E-06	2.41E-02	4.06	lb/yr	A	Yes	Yes	2.75E-06	2.41E-02	1.20E-05
Chromium	7440-47-3	NM	NM	3.50E-06	3.07E-02	1.04E-01	lb/hr	A	No	Yes	3.50E-06	3.07E-02	1.53E-05
Cobalt	7440-48-4	NM	NM	2.10E-07	1.84E-03	4.17E-03	lb/hr	A	Yes	Yes	2.10E-07	1.84E-03	9.20E-07
Copper	7440-50-8	NM	NM	2.13E-06	1.86E-02	2.09E-01	lb/hr	A	No	Yes	2.13E-06	1.86E-02	9.31E-06
Dibenzo(a,h)anthracene	53-70-3	NM	NM	3.00E-09	2.63E-05	6.08	lb/yr	A	No	Yes	3.00E-09	2.63E-05	1.31E-08

Pollutant	CAS Number	Actual Emissions		Maximum Theoretical Emissions		NR 445 Threshold Values (Stacks 25 to < 40 ft)	Units	NR 445 Table	Federal Listed HAP	State Listed HAP	Potential To Emit		
		lb/hr	ton/yr	lb/hr	lb/yr						lb/hr	lb/yr	ton/yr
Formaldehyde	50-00-0	NM	NM	1.88E-04	1.64	562	lb/yr	A	Yes	Yes	1.88E-04	1.64	8.21E-04
Hexane	110-54-3	NM	NM	4.50E-03	3.94E+01	36.8	lb/hr	A	Yes	Yes	4.50E-03	3.94E+01	1.97E-02
Indeno(1,2,3-cd)pyrene	193-39-5	NM	NM	4.50E-09	3.94E-05	66.4	lb/yr	A	No	Yes	4.50E-09	3.94E-05	1.97E-08
Manganese	7439-96-5	NM	NM	9.50E-07	8.32E-03	4.17E-02	lb/hr	A	Yes	Yes	9.50E-07	8.32E-03	4.16E-06
Mercury	7439-97-6	NM	NM	6.50E-07	5.69E-03	5.22E-03	lb/hr	A	Yes	Yes	6.50E-07	5.69E-03	2.85E-06
Molybdenum	7439-98-7	NM	NM	2.75E-06	2.41E-02	2.09	lb/hr	A	Yes	Yes	2.75E-06	2.41E-02	1.20E-05
Naphthalene	91-20-3	NM	NM	1.53E-06	1.34E-02	10.9	lb/hr	A	Yes	Yes	1.53E-06	1.34E-02	6.68E-06
Nickel	7440-02-0	NM	NM	5.25E-06	4.60E-02	28.1	lb/yr	A	Yes	Yes	5.25E-06	4.60E-02	2.30E-05
Selenium	7782-49-2	NM	NM	6.00E-08	5.26E-04	4.17E-02	lb/hr	A	Yes	Yes	6.00E-08	5.26E-04	2.63E-07
Toluene	108-88-3	NM	NM	8.50E-06	7.45E-02	39.3	lb/hr	A	Yes	Yes	8.50E-06	7.45E-02	3.72E-05

21. **P21, S50, S51, S52, S53: MRC 6-Installed 2004** All maximum theoretical and potential to emit emissions were supplied by the facility.

Criteria Pollutant Emissions From Stack S50

Stack S50 vents emissions from the coater for process P21. Emissions from stack S50 are negligible.

Criteria Pollutant Emissions From Stack S51-Vents Emissions from the Oven

Pollutant	Actual Emissions		Maximum Theoretical Emissions		Allowable Emissions		Potential To Emit	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Volatile Organic Compound	0	0	5.12	22.0	56.8	249	2.05	9.00

Criteria Pollutant Emissions From Stack S52

Stack S52 vents emissions from the oven zone 1 combustion for process P21. Emissions from stack S52 are negligible.

Criteria Pollutant Emissions From Stack S53

Stack S53 vents emissions from the oven zone 2 combustion for process P21. Emissions from stack S53 are negligible.

22. **I21, S37, S38, S39: Copper Plating-Installed 2004** All maximum theoretical and potential to emit emissions were supplied by the facility.

Hazardous Air Pollutant Emissions From the Copper Plating Process I21

Pollutant	CAS Number	Actual Emissions		Maximum Theoretical Emissions		NR 445 Threshold Values (Stacks > 25 ft)	Units	NR 445 Table	Federal Listed HAP	State Listed HAP	Potential To Emit		
		lb/hr	ton/yr	lb/hr	lb/yr						lb/hr	lb/yr	ton/yr
Chromium Metal	7440-47-3	3.72E-03	8.50E-04	5.94E-04	5.20	1.04E-01	lb/hr	A	No	Yes	5.94E-04	5.20	2.60E-03
Copper Dust	7440-50-8	3.99E-01	9.10E-02	6.21E-02	544	2.09E-01	lb/hr	A	No	Yes	6.21E-02	544	2.72E-01
Phosphoric Acid	7664-38-2	1.31E-02	3.00E-03	3.31E-03	29.0	2.09E-01	lb/hr	A	No	Yes	3.31E-03	29.0	1.45E-02
Sulfuric Acid	7664-93-9	3.07E-02	7.00E-03	1.60E-03	14.0	2.09E-01	lb/hr	A	No	Yes	1.60E-03	14.0	7.00E-03

Criteria Pollutant Emissions From Stack S37

Stack S37 vents emissions from the 1st copper tank.

Criteria Pollutant Emissions From Stack S38

Stack S38 vents emissions from the 2nd copper tank.

Criteria Pollutant Emissions From Stack S39

Stack S39 vents emissions from the cleaning tank.

23. **P22, S40, S41, S42, S43, S48: CF6 Ceramic Fiber Firing-Last Modified 2003** All maximum theoretical and potential to emit emissions were supplied by the facility.

Criteria Pollutant Emissions From Stack S40

Stack S40 vents emissions from the new spinroom. Emissions from stack S40 are negligible.

Criteria Pollutant Emissions From Stack S41

Pollutant	Actual Emissions		Maximum Theoretical Emissions		Allowable Emissions			Potential To Emit		
	lb/hr	ton/yr	lb/hr	ton/yr	lb/month	lb/hr	ton/yr	lb/month	lb/hr	ton/yr
Carbon Monoxide	0	0	3.28	14.4	N/A	N/A	N/A	2.39E+03	3.28	14.4
Nitrogen Oxide	0	0	7.68E-02	3.36E-01	N/A	N/A	N/A	5.61E+01	7.68E-02	3.36E-01
Volatile Organic Compound	0	0	4.23	18.5	1.35E+04	18.5	81.0	3.09E+03	4.23	18.5

N/A - Not Applicable-general conditions apply

Criteria Pollutant Emissions From Stack S42

According to the facility, emissions from stack S42 consist of small amounts of carbon monoxide and nitrogen oxide and HAPs from process P22. Emissions from stack S42 are routed to the thermal oxidizer and vented through stack S43.

Criteria Pollutant Emissions From Stack S48

Stack S48 is an emergency by-pass stack only.

B. Facility Emissions Summary.**Criteria Pollutant Emissions From Thermal Oxidizer C05-Controls Emissions from P15, P16, P19, and P22**

Pollutant	Actual Emissions		Maximum Theoretical Emissions		Allowable Emissions		Potential To Emit	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Carbon Monoxide	0	0	12.5	54.6	N/A	N/A	12.5	54.6
Nitrogen Oxide	0	0	7.72E-01	3.38	N/A	N/A	7.72E-01	3.38
Particulate Matter	0	0	1.00E-02	4.38E-02	N/A	N/A	1.00E-02	4.38E-02
Sulfur Dioxide	0	0	1.20E-03	5.26E-03	N/A	N/A	1.20E-03	5.26E-03
Volatile Organic Compound	0	0	4.65	20.4	56.8	249	4.65	20.4

N/A - Not Applicable-general conditions apply

P15, P16, P17, P18, P19, and P22 Total Hazardous Air Pollutant Emissions

Pollutant	CAS Number	Actual Emissions		Maximum Theoretical Emissions		NR 445 Threshold Values (Stacks > 25 ft)	Units	NR 445 Table	Federal Listed HAP	State Listed HAP	Potential To Emit		
		lb/hr	ton/yr	lb/hr	lb/yr						lb/hr	lb/yr	ton/yr
Acetaldehyde	75-07-0	1.00E-01	4.38E-01	3.20	2.80E+04	10.7	lb/hr	A	Yes	Yes	3.20	2.80E+04	14.0
Acetic Acid	64-19-7	1.10E-01	4.82E-01	1.30	1.14E+04	5.12	lb/hr	A	No	Yes	1.30	1.14E+04	5.69
Ammonia	7664-41-7	1.00E-02	4.38E-02	4.08E-01	3.57E+03	3.63	lb/hr	A	No	Yes	4.08E-01	3.57E+03	1.79
Formaldehyde	50-00-0	2.00E-02	8.76E-02	2.27E-01	1.99E+03	562	lb/yr	A	Yes	Yes	2.27E-01	1.99E+03	9.94E-01
Hydrogen Cyanide	74-90-8	3.00E-02	1.31E-01	2.02E-01	1.77E+03	1.24	lb/hr	A	No	Yes	2.02E-01	1.77E+03	8.83E-01
N,N-Dimethylformamide	68-12-2	8.00E-02	3.50E-01	3.60E-01	3.15E+03	6.24	lb/hr	A	Yes	Yes	3.60E-01	3.15E+03	1.58

W – Watchlist Pollutant

Total Criteria Pollutant Emissions

Pollutant	Process	Stack	Fuel (Boilers P01-P05 Only)	Actual Emissions		Maximum Theoretical Emissions		Allowable Emissions			Potential To Emit	
				lb/hr	ton/yr	lb/hr	ton/yr	lb/month	lb/hr	ton/yr	lb/hr	ton/yr
Carbon Monoxide	S01	P01	Natural Gas	NM	NM	1.76	7.73	N/A	N/A	N/A	1.76	7.73

Pollutant	Process	Stack	Fuel (Boilers P01-P05 Only)	Actual Emissions		Maximum Theoretical Emissions		Allowable Emissions			Potential To Emit	
				lb/hr	ton/yr	lb/hr	ton/yr	lb/month	lb/hr	ton/yr	lb/hr	ton/yr
Carbon Monoxide	S02	P02	Natural Gas	NM	NM	1.12	4.89	N/A	N/A	N/A	1.12	4.89
Carbon Monoxide	S03	P03	Natural Gas	NM	NM	1.40	6.14	N/A	N/A	N/A	1.40	6.14
Carbon Monoxide	S04	P04	Natural Gas	NM	NM	8.82E-01	3.86	N/A	N/A	N/A	8.82E-01	3.86
Carbon Monoxide	S05	P05	Natural Gas	NM	NM	8.82E-01	3.86	N/A	N/A	N/A	8.82E-01	3.86
Carbon Monoxide	S15	P15	Not Applicable	0	0	1.64	7.18	N/A	N/A	N/A	1.64	7.18
Carbon Monoxide	S16	P16	Not Applicable	0	0	1.64	7.18	N/A	N/A	N/A	1.64	7.18
Carbon Monoxide	S17	P17	Not Applicable	0	0	4.35E-02	1.91E-01	N/A	N/A	N/A	4.35E-02	1.91E-01
Carbon Monoxide	S27	P17	Not Applicable	0	0	6.53E-02	2.86E-01	N/A	N/A	N/A	6.53E-02	2.86E-01
Carbon Monoxide	S18	P18	Not Applicable	0	0	2.18E-02	9.53E-02	N/A	N/A	N/A	2.18E-02	9.53E-02
Carbon Monoxide	S28	P18	Not Applicable	0	0	3.26E-02	1.43E-01	N/A	N/A	N/A	3.26E-02	1.43E-01
Carbon Monoxide	S19	P19	Not Applicable	0	0	1.64	7.18	N/A	N/A	N/A	1.64	7.18
Carbon Monoxide	S31	P20	Not Applicable	0	0	6.00E-02	2.63E-01	N/A	N/A	N/A	6.00E-02	2.63E-01
Carbon Monoxide	S32	P20	Not Applicable	0	0	6.00E-02	2.63E-01	N/A	N/A	N/A	6.00E-02	2.63E-01
Carbon Monoxide	S41	P22	Not Applicable	0	0	3.28	14.4	N/A	N/A	N/A	3.28	14.4
Total												63.6
Nitrogen Oxide	S01	P01	#2 Fuel Oil	NM	NM	3.00	13.1	N/A	N/A	N/A	3.00	13.1
Nitrogen Oxide	S02	P02	#2 Fuel Oil	NM	NM	1.90	8.32	N/A	N/A	N/A	1.90	8.32
Nitrogen Oxide	S03	P03	#2 Fuel Oil	NM	NM	2.39	10.4	N/A	N/A	N/A	2.39	10.4
Nitrogen Oxide	S04	P04	#2 Fuel Oil	NM	NM	1.50	6.57	N/A	N/A	N/A	1.50	6.57
Nitrogen Oxide	S05	P05	#2 Fuel Oil	NM	NM	1.50	6.57	N/A	N/A	N/A	1.50	6.57
Nitrogen Oxide	S15	P15	Not Applicable	0	0	1.34E-01	5.89E-01	N/A	N/A	N/A	1.34E-01	5.89E-01
Nitrogen Oxide	S16	P16	Not Applicable	0	0	1.34E-01	5.89E-01	N/A	N/A	N/A	1.34E-01	5.89E-01
Nitrogen Oxide	S17	P17	Not Applicable	0	0	8.96E-02	3.92E-01	N/A	N/A	N/A	8.96E-02	3.92E-01
Nitrogen Oxide	S27	P17	Not Applicable	0	0	1.34E-01	5.89E-01	N/A	N/A	N/A	1.34E-01	5.89E-01
Nitrogen Oxide	S18	P18	Not Applicable	0	0	4.48E-02	1.96E-01	N/A	N/A	N/A	4.48E-02	1.96E-01
Nitrogen Oxide	S28	P18	Not Applicable	0	0	6.72E-02	2.94E-01	N/A	N/A	N/A	6.72E-02	2.94E-01
Nitrogen Oxide	S19	P19	Not Applicable	0	0	1.34E-01	5.89E-01	N/A	N/A	N/A	3.84E-02	1.68E-01
Nitrogen Oxide	S31	P20	Not Applicable	0	0	7.14E-02	3.13E-01	N/A	N/A	N/A	7.14E-02	3.13E-01
Nitrogen Oxide	S32	P20	Not Applicable	0	0	7.14E-02	3.13E-01	N/A	N/A	N/A	7.14E-02	3.13E-01
Nitrogen Oxide	S41	P22	Not Applicable	0	0	7.68E-02	3.36E-01	N/A	N/A	N/A	7.68E-02	3.36E-01
Total												48.8
Particulate Matter	S01	P01	#2 Fuel Oil	NM	NM	3.00E-01	1.31	N/A	3.00E-01	1.31	3.00E-01	1.31

Pollutant	Process	Stack	Fuel (Boilers P01-P05 Only)	Actual Emissions		Maximum Theoretical Emissions		Allowable Emissions			Potential To Emit	
				lb/hr	ton/yr	lb/hr	ton/yr	lb/month	lb/hr	ton/yr	lb/hr	ton/yr
Particulate Matter	S02	P02	#2 Fuel Oil	NM	NM	1.90E-01	8.32E-01	N/A	1.90E-01	8.32E-01	1.90E-01	0.83
Particulate Matter	S03	P03	#2 Fuel Oil	NM	NM	2.39E-01	1.04	N/A	2.39E-01	1.04	2.39E-01	1.04
Particulate Matter	S04	P04	#2 Fuel Oil	NM	NM	1.50E-01	6.57E-01	N/A	1.50E-01	6.57E-01	1.50E-01	0.66
Particulate Matter	S05	P05	#2 Fuel Oil	NM	NM	1.50E-01	6.57E-01	N/A	1.50E-01	6.57E-01	1.50E-01	0.66
Particulate Matter	S34	P08	Not Applicable	1.00E-02	4.38E-02	1.00E-02	4.38E-02	NM	3.30E-01	1.45	1.00E-02	4.38E-02
Particulate Matter	S35	P08	Not Applicable	4.00E-02	1.75E-01	5.50E-02	2.41E-01	NM	3.30E-01	1.45	5.50E-02	2.41E-01
Particulate Matter	S09	P09	Not Applicable	0	0	3.20E-01	1.40	NM	3.20E-01	1.40	3.20E-01	1.40
Particulate Matter	S14	P14	Not Applicable	NM	NM	5.80E-01	2.54	NM	5.80E-01	2.54	5.80E-01	2.54
Particulate Matter	S31	P20	Not Applicable	0	0	5.40E-03	2.37E-02	N/A	N/A	N/A	5.40E-03	2.37E-02
Particulate Matter	S32	P20	Not Applicable	0	0	5.40E-03	2.37E-02	N/A	N/A	N/A	5.40E-03	2.37E-02
Total											8.78	
Sulfur Dioxide	S01	P01	#2 Fuel Oil	NM	NM	1.07	4.66	N/A	N/A	N/A	1.07	4.66
Sulfur Dioxide	S02	P02	#2 Fuel Oil	NM	NM	6.75E-01	2.95	N/A	N/A	N/A	6.75E-01	2.95
Sulfur Dioxide	S03	P03	#2 Fuel Oil	NM	NM	8.47E-01	3.71	N/A	N/A	N/A	8.47E-01	3.71
Sulfur Dioxide	S04	P04	#2 Fuel Oil	NM	NM	5.33E-01	2.33	N/A	N/A	N/A	5.33E-01	2.33
Sulfur Dioxide	S05	P05	#2 Fuel Oil	NM	NM	5.33E-01	2.33	N/A	N/A	N/A	5.33E-01	2.33
Sulfur Dioxide	S31	P20	Not Applicable	0	0	4.00E-04	1.75E-03	N/A	N/A	N/A	4.00E-04	1.75E-03
Sulfur Dioxide	S32	P20	Not Applicable	0	0	4.00E-04	1.75E-03	N/A	N/A	N/A	4.00E-04	1.75E-03
Total											16.0	
Volatile Organic Compound	P01	S01	Natural Gas	NM	NM	1.16E-01	5.06E-01	N/A	N/A	N/A	1.16E-01	5.06E-01
Volatile Organic Compound	P02	S02	Natural Gas	NM	NM	7.32E-02	3.20E-01	N/A	N/A	N/A	7.32E-02	3.20E-01
Volatile Organic Compound	P03	S03	Natural Gas	NM	NM	9.19E-02	4.02E-01	N/A	N/A	N/A	9.19E-02	4.02E-01
Volatile Organic Compound	P04	S04	Natural Gas	NM	NM	5.78E-02	2.53E-01	N/A	N/A	N/A	5.78E-02	2.53E-01
Volatile Organic Compound	P05	S05	Natural Gas	NM	NM	5.78E-02	2.53E-01	N/A	N/A	N/A	5.78E-02	2.53E-01
Volatile Organic Compound	P06	S06	Not Applicable	0	0	1.82	7.98	NM	56.8	249	1.82	7.98
Volatile Organic Compound	P07	S22	Not Applicable	10.5	46.1	56.8	249	NM	56.8	249	11.4	50.0

Pollutant	Process	Stack	Fuel (Boilers P01-P05 Only)	Actual Emissions		Maximum Theoretical Emissions		Allowable Emissions			Potential To Emit	
				lb/hr	ton/yr	lb/hr	ton/yr	lb/month	lb/hr	ton/yr	lb/hr	ton/yr
Volatile Organic Compound	P07	S49	Not Applicable	10.5	46.1	56.8	249	NM	56.8	249	11.4	50.0
Volatile Organic Compound	P08	S34	Not Applicable	23.4	3.04	58.6	10.7	NM	56.8	249	1.14	5.00
Volatile Organic Compound	P08	S35	Not Applicable	0	0	2.60E-03	1.14E-02	NM	56.8	249	2.60E-03	1.14E-02
Volatile Organic Compound	P09	S09	Not Applicable	0	0	5.69E+01	4.98E+05	2.34E+03	3.20	14.0	3.20	14.0
Volatile Organic Compound	P10, P11, P12, P13, P14	S20, S21, S12, S23, S14	Not Applicable	3.32	1.45E+01	1.56E+01	1.60E+02	6.65E+03	9.11	3.99E+01	7.29	3.19E+01
Volatile Organic Compound	P15, P16, P17, P18, P19, P22	S15, S16, S17, S27, S18, S28, S19, S41	Not Applicable	0	0	13.8	60.6	1.35E+04	18.5	81.0	13.8	60.6
Volatile Organic Compound	P20	S31	Not Applicable	0	0	3.90E-03	1.71E-02	1.67E+03	2.28	10.0	3.90E-03	1.71E-02
Volatile Organic Compound	P20	S32	Not Applicable	0	0	3.90E-03	1.71E-02	1.67E+03	2.28	10.0	3.90E-03	1.71E-02
Volatile Organic Compound	P20	S33	Not Applicable	0	0	2.28	10.0	1.67E+03	2.28	10.0	2.28	10.0
Volatile Organic Compound	P21	S51	Not Applicable	0	0	5.12	22.0	NM	56.8	249	2.05	9.00
Volatile Organic Compound												240

NM - Not Measured

N/A - Not Applicable-general conditions apply

Total Hazardous Air Pollutant Emissions

Pollutant	Process	Stack	Actual Emissions		Maximum Theoretical Emissions		NR 445 Threshold Values (Stacks 25 to <75 ft)	Units	NR 445 Table	Federal Listed HAP	State Listed HAP	Potential To Emit		
			lb/hr	ton/yr	lb/hr	lb/yr						lb/hr	lb/yr	ton/yr
Acetaldehyde	P15, P16, P17, P18, P19, P22	S43	1.00E-01	4.38E-01	3.20	2.80E+04	10.7	lb/hr	A	Yes	Yes	3.20	2.80E+04	1.40E+01
Acetaldehyde	P08	S35	5.30E-04	2.32E-03	4.40E-04	3.85	10.7	lb/hr	A & W	Yes	Yes	4.40E-04	3.85	1.93E-03

Pollutant	Process	Stack	Actual Emissions		Maximum Theoretical Emissions		NR 445 Threshold Values (Stacks 25 to <75 ft)	Units	NR 445 Table	Federal Listed HAP	State Listed HAP	Potential To Emit		
			lb/hr	ton/yr	lb/hr	lb/yr						lb/hr	lb/yr	ton/yr
Arsenic	P20	S31, S32, S33	NM	NM	5.00E-07	4.38E-03	1.70	lb/yr	A	Yes	Yes	5.00E-07	4.38E-03	2.19E-06
Benzene	P20	S31, S32, S33	NM	NM	5.25E-06	4.60E-02	936	lb/yr	A	Yes	Yes	5.25E-06	4.60E-02	2.30E-05
Beryllium	P20	S31, S32, S33	NM	NM	3.00E-08	2.63E-04	14.6	lb/yr	A	Yes	Yes	3.00E-08	2.63E-04	1.31E-07
Cadmium	P20	S31, S32, S33	NM	NM	2.75E-06	2.41E-02	4.06	lb/yr	A	Yes	Yes	2.75E-06	2.41E-02	1.20E-05
Cobalt	P20	S31, S32, S33	NM	NM	2.10E-07	1.84E-03	4.17E-03	lb/hr	A	Yes	Yes	2.10E-07	1.84E-03	9.20E-07
Formaldehyde	P20	S31, S32, S33	NM	NM	1.88E-04	1.64	562	lb/yr	A	Yes	Yes	1.88E-04	1.64	8.21E-04
Formaldehyde	P15, P16, P17, P18, P19, P23	S43	2.00E-02	8.76E-02	2.27E-01	1.99E+03	562	lb/yr	A	Yes	Yes	2.27E-01	1.99E+03	9.94E-01
Hexane	P20	S31, S32, S33	NM	NM	4.50E-03	39.4	36.8	lb/hr	A	Yes	Yes	4.50E-03	39.4	1.97E-02
Manganese	P20	S31, S32, S33	NM	NM	9.50E-07	8.32E-03	4.17E-02	lb/hr	A	Yes	Yes	9.50E-07	8.32E-03	4.16E-06
Mercury	P20	S31, S32, S33	NM	NM	6.50E-07	5.69E-03	5.22E-03	lb/hr	A	Yes	Yes	6.50E-07	5.69E-03	2.85E-06
Methyl Ethyl Ketone (MEK)	P07	S22	8.80E-01	3.85	5.68E+01	4.98E+05	625	lb/hr	W	Yes	No	5.68E+01	4.98E+05	2.49E+02
Methyl Ethyl Ketone (MEK)	P07	S49	8.80E-01	3.85	5.68E+01	4.98E+05	625	lb/hr	W	Yes	No	5.68E+01	4.98E+05	2.49E+02
Methyl Ethyl Ketone (MEK)	P09	S09	0	0	5.02E-02	440	625	lb/hr	W	Yes	No	5.02E-02	440	2.20E-01
Methyl Isobutyl Ketone (MIBK)	P09	S09	0	0	56.8	4.98E+05	42.7	lb/hr	A	Yes	Yes	3.20	2.80E+04	14.0
Molybdenum	P20	S31, S32, S33	NM	NM	2.75E-06	2.41E-02	2.09	lb/hr	A	Yes	Yes	2.75E-06	2.41E-02	1.20E-05
N,N-Dimethylformamide	P15, P16, P17, P18, P19, P24	S43	8.00E-02	3.50E-01	3.60E-01	3.15E+03	6.24	lb/hr	A	Yes	Yes	3.60E-01	3.15E+03	1.58
Naphthalene	P20	S31, S32, S33	NM	NM	1.53E-06	1.34E-02	10.9	lb/hr	A	Yes	Yes	1.53E-06	1.34E-02	6.68E-06

Pollutant	Process	Stack	Actual Emissions		Maximum Theoretical Emissions		NR 445 Threshold Values (Stacks 25 to <75 ft)	Units	NR 445 Table	Federal Listed HAP	State Listed HAP	Potential To Emit		
			lb/hr	ton/yr	lb/hr	lb/yr						lb/hr	lb/yr	ton/yr
Nickel	P20	S31, S32, S33	NM	NM	5.25E-06	4.60E-02	28.1	lb/yr	A	Yes	Yes	5.25E-06	4.60E-02	2.30E-05
Selenium	P20	S31, S32, S33	NM	NM	6.00E-08	5.26E-04	4.17E-02	lb/hr	A	Yes	Yes	6.00E-08	5.26E-04	2.63E-07
Toluene ¹	P20	S31, S32, S33	NM	NM	8.50E-06	7.45E-02	39.3	lb/hr	A	Yes	Yes	8.50E-06	7.45E-02	3.72E-05
Toluene ²	P07	S22	9.06	39.7	41.6	3.64E+05	79.3	lb/hr	A	Yes	Yes	41.6	3.64E+05	182
Toluene ²	P07	S49	9.06	39.7	41.6	3.64E+05	79.3	lb/hr	A	Yes	Yes	41.6	3.64E+05	182
Toluene ¹	P09	S09	789	3.46E+03	41.6	3.64E+05	39.3	lb/hr	A	Yes	Yes	39.3	3.44E+05	172
Vinyl Acetate	P08	S35	2.60E-03	1.14E-02	2.20E-03	19.3	7.35	lb/hr	A	Yes	Yes	2.20E-03	19.3	9.64E-03
Total														1.07E+03

NM - Not Measured

N/A - Not Applicable-general conditions apply

W – Watchlist Pollutant

¹ The NR 445 threshold are for stack heights between 25 ft and 40 ft.

² The NR 445 threshold are for stack heights between 40 ft and 75 ft.

FACILITY STATUS UNDER PART 70

The facility has the potential to emit more than 100 tons per year of criteria pollutants. Therefore, the facility is considered a major source and will operate under Part 70 status as defined in s. NR 407.02(6)(a)1., Wis. Adm. Code. Pollutants emitted and regulated by NR 445 have potential to emit emissions that are all under the table values with the exception of formaldehyde. BACT for this site will be to limit formaldehyde emissions to 166 pounds per month, 12-month rolling average), and shall incorporate the control device (C05) on the units utilizing the “worse case raw materials” (CF1, CF2, CF5, and CF6). The facility will maintain sufficient records showing formaldehyde emissions are below the BACT established limit of 166 pounds per month. The facility will be required to operate the control equipment to remove at least 40.8% (41%, to two significant figures), on average, of formaldehyde emissions from each of the processes P15 (CF1), P16 (CF2), P19 (CF5), and P22 (CF6), when utilizing “worse case raw materials” during operation. Please refer to the “Hazardous Air Contaminant Review - ch. NR 445, Wis. Adm. Code Requirements” section above for more detail.

The potential to emit emissions for individual federal hazardous air pollutants are greater than 10 tons per year and the total of all federal hazardous air pollutants for the entire facility is greater than 25 tons per year so the facility is classified as a major source for federal hazardous air pollutants.

Part 70 Applicability	Existing Facility			Facility After Permit Issuance		
	Part 70	FESOP (Syn. Minor)	non-part 70	Part 70	FESOP (Syn. Minor)	non-part 70
Status	X			X		

NSR Applicability	Existing Facility		Facility After Operation Permit Issuance	
	Major	Minor	Major	Minor
Federal HAP	X		X	

FACILITY STATUS UNDER PREVENTION OF SOURCE DETERIORATION

Prior to construction permit 04-SJZ-142, operation permit 617056660-P01, and the Cooperative Environmental Agreement between 3M and the Department, all divisions at the 3M Menomonie facility were considered separate facilities with separate facility identification numbers. When new processes were permitted as separate facilities, 3M voluntarily chose to restrict emissions to remain a minor source under sections NR 405 through NR 407 of the Wis. Adm. Code regardless if sections NR 405 through 407 of the Wis. Adm. Code applied. The emission limitations for new processes (separate facilities) were established voluntarily and were not subject to PSD requirements when they were permitted under New Source Review. Now that all processes and divisions are permitted as one facility under construction permit 04-SJZ-142 and operation permit 617056660-P01, the facility will still be considered a PSD minor source with the established VOC limit of 20.75 tons per month, averaged over any 12 consecutive months, for the entire facility.

NSR Applicability	Existing Facility		Facility After Operation Permit Issuance	
	Major	Minor	Major	Minor

NSR Applicability	Existing Facility		Facility After Operation Permit Issuance	
	Major	Minor	Major	Minor
PSD		X		X

COMPLIANCE DEMONSTRATION MONITORING RECORDS

For details on specific compliance demonstration methods, please refer to the operation permit 617056660-P01.

P01, S01: 21 million BTU/hr Kewaunee Boiler-Installed 1996 The heat input capacity of boiler P01 is between 10 mmBTU/hr and 100 mmBTU/hr and designed to burn natural gas and #2 fuel oil. Therefore, the boiler P01 is subject to s. NR 440.207, Wis. Adm. Code, new source performance standards (NSPS) for small industrial-commercial-institutional steam generating units. The applicable NSPS for sulfur dioxide, requires that the oil not contain greater than 0.5 weight percent sulfur and that certification from the fuel supplier be submitted. However, in order to comply with the NAAQS, 3M has requested a sulfur content limit of 0.05 weight percent. The applicable NSPS for particulate matter, requires that gases from the facility not exhibit greater than 20% opacity. The facility will show compliance with the sulfur content limit of 0.05 weight percent by requiring the fuel oil supplier to certify the sulfur content by weight of the fuel oil.

Particulate matter emissions from boiler P01 shall be limited to 0.300 pounds of particulate matter per hour, per s. 285.65(7), Wis. Stats. Section NR 431.05, Wis. Adm. Code, also requires an opacity limit of 20% for facilities constructed after April 1, 1972. Compliance with the particulate matter limit and opacity limit will be demonstrated by allowing only natural gas and #2 fuel oil to be combusted in boiler P01.

P02, S02 – 13.3 Million BTU/hr Boiler-Installed 1974

P03, S03 – 16.7 Million BTU/hr Boiler-Installed 1980

P04, S04 – 10.5 Million BTU/hr Boiler-Installed 1989

P05, S05 – 10.5 Million BTU/hr Boiler-Installed 1989

The permittee shall not combust #2 fuel oil that contains greater than 0.05 weight percent sulfur, per s. 285.65(7), Wis. Stats in boilers P02, P03, P04, and P05. Because the #2 fuel oil used in boiler P01 is limited to 0.05 weight percent sulfur, the facility decided to limit all #2 fuel oil burned at the facility to a sulfur content of no more than 0.05 weight percent sulfur. The facility will show compliance with the sulfur content limit of 0.05 weight percent by requiring the fuel oil supplier to certify the sulfur content by weight of the fuel oil.

Particulate matter emissions from boiler P02 shall be limited to 0.190 pounds of particulate matter per hour, per s. 285.65(7), Wis. Stats. Section NR 431.05, Wis. Adm. Code, also requires an opacity limit of 20% for facilities constructed after April 1, 1972. Compliance with the particulate matter limit and opacity limit will be demonstrated by allowing only natural gas and #2 fuel oil to be combusted in boiler P02.

Particulate matter emissions from boiler P03 shall be limited to 0.239 pounds of particulate matter per

hour, per s. 285.65(7), Wis. Stats. Section NR 431.05, Wis. Adm. Code, also requires an opacity limit of 20% for facilities constructed after April 1, 1972. Compliance with the particulate matter limit and opacity limit will be demonstrated by allowing only #2 fuel oil to be combusted in boiler P03.

Particulate matter emissions from boiler P04 shall be limited to 0.150 pounds of particulate matter per hour, per s. 285.65(7), Wis. Stats. Section NR 431.05, Wis. Adm. Code, also requires an opacity limit of 20% for facilities constructed after April 1, 1972. Compliance with the particulate matter limit and opacity limit will be demonstrated by allowing only natural gas and #2 fuel oil to be combusted in boiler P04.

Particulate matter emissions from boiler P05 shall be limited to 0.150 pounds of particulate matter per hour, per s. 285.65(7), Wis. Stats. Section NR 431.05, Wis. Adm. Code, also requires an opacity limit of 20% for facilities constructed after April 1, 1972. Compliance with the particulate matter limit and opacity limit will be demonstrated by allowing only natural gas and #2 fuel oil to be combusted in boiler P05.

Process P10, S10, S20: MRC Resin Coating Line 1-Last Modified 2000

Process P11, S11, S21: MRC Resin Coating Line 2-Last Modified 2000

Process P12, S12: MRC Resin Coating Line 3-Last Modified 2000

Process P13, S13, S23: MRC Resin Coating Line 4-Installed 2000

Process P06, S06, S36: MRC Resin Coating Line 5-Installed 2003

Process P21, S50, S51, S52, S53: MRC Resin Coating Line 6-Installed 2004

The facility will show compliance with the limits in 40 CFR subpart JJJJ by demonstrating that, as purchased, each coating material applied during the month contains no more than 0.04 kg VOC per kg of coating material, or no more than 0.2 kg VOC per kg coating solids. The facility will also show compliance with the VOC by demonstrating that the monthly average VOC content of all as-applied coating materials is no more than 0.04 kg VOC per kg of coating material, or no more than 0.2 kg VOC per kg coating solids. The facility may also show compliance with the VOC limits by choosing a different method of compliance not listed above demonstration that is provided in 40 CFR Subpart JJJJ.

The facility shall determine and record the total mass of each coating material applied each month to each web coating line of the MACT JJJJ Affected Source and the "as-purchased" volatile organic content and coating solids content of each coating material applied.

To demonstrate compliance with the VOC limits for the MRC Resin Coating Lines P10, P11, P12, and P13, daily VOC emission rates shall be calculated daily using the coating usage records and VOC contents for the MRC Resin Coating Lines P10, P11, P12, and P13. The daily VOC calculations (in pounds of VOC's) for the MRC Resin Coating Lines P10, P11, P12, and P13 shall be summed together each month to determine the total monthly VOC usage of the process. Records shall be kept of daily VOC emission rates from the MRC Resin Coating Lines P10, P11, P12, and P13.

P07, S07, S22, S24, S49: Tape Coating-Installed 1983

The facility will show compliance with the limits in 40 CFR subpart JJJJ by demonstrating that, as purchased, each coating material applied during the month contains no more than 0.04 kg VOC per kg of coating material, or no more than 0.2 kg VOC per kg coating solids. The facility will also show

compliance with the VOC by demonstrating that the monthly average VOC content of all as-applied coating materials is no more than 0.04 kg VOC per kg of coating material, or no more than 0.2 kg VOC per kg coating solids. The facility may also show compliance with the VOC limits by choosing a different method of compliance not listed above demonstration that is provided in 40 CFR Subpart JJJJ.

The facility shall determine and record the total mass of each coating material applied each month to each web coating line of the MACT JJJJ Affected Source and the "as-purchased" volatile organic content and coating solids content of each coating material applied.

The facility shall show compliance with the limits in 40 CFR 60 Subpart RR by showing compliance with the limits in 40 CFR subpart JJJJ.

The VOC limitation of 2.9 pounds of VOC per gallon for process P07 may be met by considering the precoat(s) and major coat as separate "layers" of the final coating. A weight average of VOC contents of the "layers" on the same product shall be used to determine compliance of the final coating.

To demonstrate compliance with the VOC content limit for the tape coating line process P07, records shall be kept of coating usage and other information for process P07 which will demonstrate the pounds of VOC per gallon of coating (less water, as delivered), the pounds of VOC emitted per day, and the pounds of VOC emitted per year by the process line.

P08, C03, C04, S08, S34, S35: Chrome Plating Process #2-Installed 2003

P14, S14, C02: Chrome Plating Process-Installed 1996

The facility shall demonstrate compliance with the 0.015 mg/dscm limit for process P08, as total chromium at the exhaust of the mesh filter/HEPA filter (C03) and fabric filter (C04) by operating and maintaining the associated air pollution control devices and monitoring equipment, in a manner consistent with good air pollution control practices and the operation and maintenance plan, including during periods of startup, shutdown, and malfunction. The facility shall also develop and operation and maintenance plan. The facility shall submit monitoring reports that include the results of the monitoring equipment.

The facility shall demonstrate compliance with the 0.015 mg/dscm limit for process P14, as total chromium at the exhaust of the mesh filter/HEPA filter (C02) by operating and maintaining the associated air pollution control devices and monitoring equipment, in a manner consistent with good air pollution control practices and the operation and maintenance plan, including during periods of startup, shutdown, and malfunction. The facility shall also develop and operation and maintenance plan. The facility shall submit monitoring reports that include the results of the monitoring equipment.

To show compliance with the particulate matter limits for the chrome plating process #2 and the chrome plating process, the facility shall operate the composite mesh pad system (C02), chrome scrubber and composite mesh pad system (C03), and fabric filter (C04) at all times when the chrome plating process lines P08 and P14 are operating. To also demonstrate compliance, the facility shall also monitor the pressure drop across the composite mesh pad system (C02), chrome scrubber and composite mesh pad system (C03), and fabric filter (C04) at the beginning of each operating shift. The facility shall maintain

the pressure drop monitoring device for processes P08 and P14 in accordance with the manufacturer's recommendations.

Since the chrome plating process #2 P08 was installed or modified on or after August 1, 1979, and will have VOC emissions greater than 15 pounds per day, the chrome plating process #2 must also meet the control requirements under Chapter NR 424, Wis. Adm. Code, for organic compound emissions from process lines. VOC emissions from process P08 shall be controlled by at least 85%, unless the facility can show control of the VOC emissions is technologically infeasible, per s. NR 424.03(2)(c), Wis. Adm. Code. 3M Menomonic – OSD-Plating has provided a LACT analysis showing 85% control is infeasible. The LACT determination for chrome plating #2 process P08 is the following workpractice: cleaning shall be performed using only isopropyl alcohol (IPA) which is applied to parts using squeegee bottles which are no larger than 1-liter in volume, and no more than 475 1-liter squeegee bottles used per month, based on a 12-month rolling average, or an equivalent combination of bottles of different volume which results in VOC emissions of no more than 833 pounds per month, based on a 12-month rolling average (5.0 tons per year). To show compliance with the LACT determination, the facility shall calculate monthly VOC emissions, for each chrome process line, within 10 days of the end of each calendar month

It has been determined in construction permit 97-MMH-605 that daily VOC emissions from chrome plating process P14 do not exceed 15 pounds and that it is exempt from the requirements in ch. NR 424, Wis. Adm. Code.

P09, S09, C01: Automated Spray Coating Line-Installed 1996

The facility shall demonstrate compliance with the particulate matter limits by installing operating, and maintaining replaceable filters to control overspray from each paint booth. The facility shall use the replaceable filters at all times when the process P09 is operating.

The facility shall demonstrate compliance with the LACT determination by installing calibrating, operating, and maintaining a device to monitor the pressure at the spray gun nozzle of the HVLP application system. The facility shall also limit the air pressure at the spray gun nozzle of the HVLP application system to 10 pounds per square inch or less.

To demonstrate compliance with the VOC limit of 2,337 pounds of VOC per month, averaged over 12 months, the facility shall calculate the average monthly VOC emissions from the automated spray booth process P09. The facility shall maintain records of the daily usage of coatings and solvents used at the coating line, in gallons; the VOC content of each coating applied, in pounds per gallon, excluding water; the actual and average VOC emissions determined at the end of each calendar month for automated spray booth process P09 during operation.

P15, S15, S25, S43, S44, S45, C05: CF1 Ceramic Fiber Making Process-Last Modified 2004

P16, S16, S26, S43, S44, S46, C05: CF2 Ceramic Fiber Making Process- Last Modified 2004

P17, S17, S27, S30: CF3 Ceramic Fiber Making Process- Last Modified 2004

P18, S18, S28: CF4 Ceramic Fiber Making Process- Last Modified 2004

P19, S19, S29, S30, S43, S47, C05: CF5 Ceramic Fiber Making Process- Last Modified 2004

P22, S40, S41, S42, S43, S48, C05: CF6 Ceramic Fiber Firing- Last Modified 2004

The facility shall demonstrate compliance with the LACT determination by operating a thermal oxidizer

to control emissions. The control efficiency shall be at least 80.4 percent (80 percent, to two significant figures) for VOC emissions, on average, between all ceramic fiber process lines controlled. Processes CF3 and CF4 are uncontrolled.

The facility shall demonstrate compliance with the formaldehyde limits by maintaining sufficient records showing formaldehyde emissions are below the BACT established limit of 166 lb/month. The facility shall operate the thermal oxidizer to remove at least 40.8% (41%, rounded to two significant figures), on average, of formaldehyde emissions from each of the processes P15 (CF1), P16 (CF2), P19 (CF5), and P22 (CF6), when utilizing “worse case raw materials” during operation.

To show compliance with the VOC limit of 13,500 pounds per month averaged over each 12 consecutive month period, the facility shall record amount (lbs) of each raw material used in the ceramic fiber making processes, VOC emissions [lb/month] from all ceramic fiber making processes, VOC emissions from all ceramic fiber making processes averaged over each 12 consecutive month period, and the date, time, and process number, when a ceramic fiber making line is operating using the worst case raw materials.

P20, S31, S32, S33: Gamma Line-Installed 2003

To demonstrate compliance with the VOC limit for the gamma line process P20, records including the date and hours of operation the process is producing roll goods and the daily usage of coatings and solvents used at the coating line, in gallons, shall be maintained during production of roll goods. To also demonstrate compliance with the VOC limit for the gamma line process P20, records including the daily usage of coatings and solvents used at the coating line, in gallons; the VOC content of each coating applied, in pounds per gallon, excluding water; and the actual and average VOC emissions determined at the end of each calendar month shall be maintained during production of sheet goods. The permittee shall keep and maintain on site a Material Safety Data Sheet (MSDS) or equivalent to document the VOC content of each chemical additive containing VOCs that are used in Process P20.

FACILITY COMPLIANCE STATUS

The Department finds that:

1. The source will meet applicable emission limits and other requirements.
2. The source will not cause nor exacerbate a violation of an ambient air quality standard or ambient air increment.

PRELIMINARY DETERMINATION

The Wisconsin Department of Natural Resources has reviewed the permit application and other materials submitted by 3M Menomonie Optical Systems Division and hereby makes a preliminary determination that an operation permit may be issued with the following Draft Applicable Limits and Draft Permit Conditions.

PERMIT FEE CALCULATION

Basic Fees.

1. Construction or replacement of a PSD or NAA minor source or the PSD or NAA minor modification of a Part 70 major source. [\$4,400]		\$4,400
2. Revision of a construction permit. [\$1,100 per basic emission unit, 2 units]	2 x \$1,100	\$2,200
Total Basic Fees		\$6,600

Additional Fees

3. Analysis of two or more basic emission units. [\$400 per basic emission unit, 5 units reviewed]	5 x \$400	\$2,000
4. Analysis of a basic emission unit which requires an emission limit determination under s. NR 424.03(2)(c). [\$400 per basic emission unit, 4 unit]	1 x \$400	\$400
5. Analysis of each case-by-case determination of maximum achievable control technology (MACT), best available control technology (BACT) or lowest achievable emission rate (LAER). [\$2,700 per basic emission unit, 1 unit]	2 x \$2,700	\$5,400
Total Additional Fee		\$7,800

Total Fee (Total Basic Fee + Total Additional Fee)	\$14,400
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TOTAL AMOUNT DUE (Total Fee + Total Credit)	\$14,400
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